THE NATIONAL GEOGRAPHIC MAGAZINE

Vol. XIII JANUARY, 1902 No. 1

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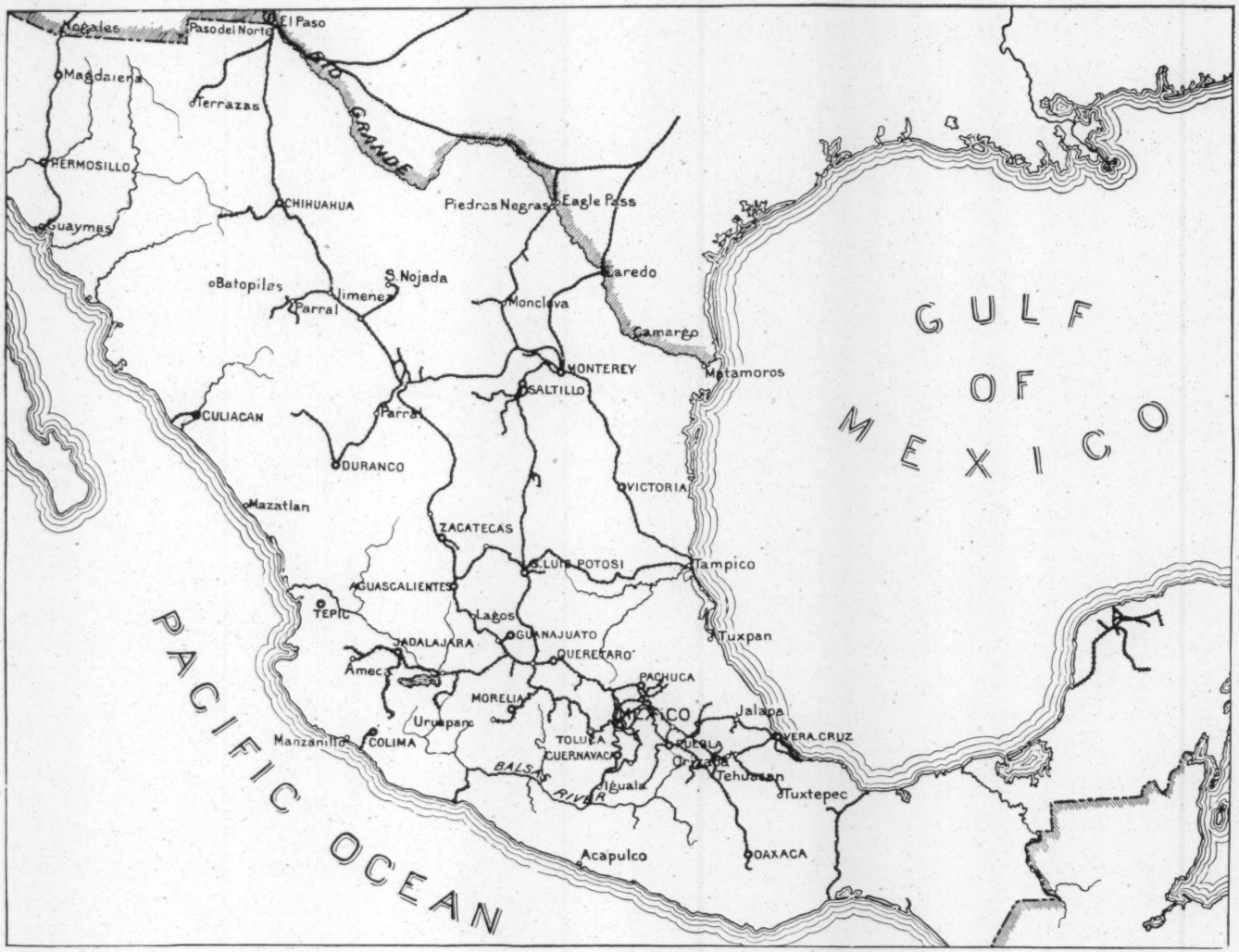


Map showing Railways of Mexico

VOL. XIII, No. 1 WASHINGTON JANUARY, 1902

THE NATIONAL GEOGRAPHIC MAGAZINE

THE NEW MEXICO*

BY JOHN W. FOSTER, EX-SECRETARY OF STATE

WHEN I was invited by the National Geographic Society to deliver a lecture in its course on my observations during a recent visit to Mexico, I felt that it would be a work of superfluity on my part. The means of communication with our neighboring Republic are now so frequent and easy, and the intercourse between the two countries is so intimate, I doubted whether I could add to the stock of knowledge of the members of the Society, especially of a geographic character; but your President thought differently, and it may be of some interest to hear the observations of one who, having resided in Mexico for seven years, returns to it after a period of twenty years, and to listen to his narrative of the progress made in the interval, and of the present conditions of that country.

RAILROAD CONSTRUCTION

It may be first noted that the greatest change in the face of the country of a geographic character has been in the construction of an extensive system of railroads and the consequent improvement in the means of communication. The first thing which strikes a visitor today who knew Mexico a quarter of a century ago is the facility and comfort with which the journey to the City of Mexico is now made. When I began the preparation for my first journey, in 1873, I found that the only means of regular communication was by a steamer from New York, departing from that port every three weeks, and which occupied usually twelve or fourteen days in reaching Vera Cruz, stopping at a number of ports en route. From that port to the City of Mexico a railroad had been finished that year, which had been nineteen years in building, a distance of 264 miles. Today four lines of railroad enter the Mexican Republic from the United States, and one can make the journey in five days from Washington to the City of Mexico in a Pullman car on the regular trains, with only one change, either at Kansas City or New Orleans.

The era of extensive railroad construction did not begin till after General Diaz had been firmly seated in the presidency. With the aid of liberal subsidies, railroad building began in

*An address before the National Geographic Society, January 3, 1902.

Map showing Railways of Mexico

General Porfirio Diaz, President of the Republic

earnest about 1880, the only road of any length at that time being the one just mentioned, from Vera Cruz to the City of Mexico. There are now completed and in operation 15,454 kilometers, approximately 10,000 miles, and by means of these lines the capital is connected with all the important cities of the country. Four lines enter the Republic from the United States. One branches off from the Southern Pacific in Arizona and traverses the State of Sonora to the port of Guaymas. The second, the Mexican Central, crosses the boundary line at El Paso, extends to the City of Mexico, with a branch line to Tampico, an important seaport on the Gulf of Mexico, and another branch to Guadalajara. The third, built under the auspices of the Southern Pacific system, from San Antonio, Texas, crossing the Rio Grande at Eagle Pass, intersects the Mexican Central at Torreon and extends some distance beyond the city of Durango, its ultimate goal being the Pacific coast; and the fourth international line, the Mexican National, crosses the boundary at Laredo and extends to the City of Mexico, being a narrow-gauge road. From the City of Mexico various other roads lead to important districts, and most of the main lines have a number of branches constructed to reach rich mineral and agricultural districts.

MOUNTAINS AND TABLE LAND

The configuration of the Republic lends itself to easy railroad connection with the United States. The great Andean Range, coming up from South America, is crowded in by the two oceans and depressed as it passes through the isthmus connecting the two continents, but as it emerges from the narrow neck of Tehuantepec into the wide expanse of North America, apparently glad of its escape from the ocean barriers, it again shoots up its peaks toward the sky, and branches off into two grand mountain chains, the one following the Pacific and the other the Gulf coast, and, like the brawny arms of a giant, lift Mexico up onto the vast tablelands which stretch far away into the United States.

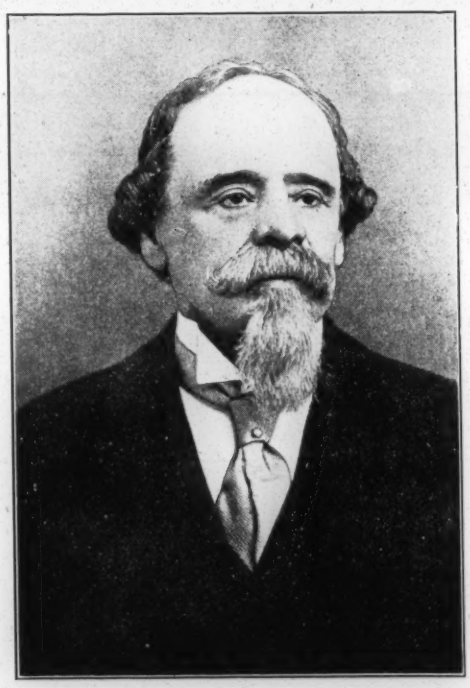
The work of connecting the capital through this vast tableland with the United States was comparatively easy. But when it came to constructing the lines from the high elevation of the City of Mexico, as has been done in various directions, toward the coasts, it became a herculean task, calling for engineering skill and a large expenditure of capital. Notwithstanding the obstacles, the mountain range confronting the Gulf has already been pierced by at least four lines of railway, and they are now in operation to Tampico and Vera Cruz, the two most important ports on the Gulf. But thus far the Sierra Madre Range traversing the Pacific coast line has not been completely crossed. The Guadalajara branch of the Mexican Central Road has been extended some distance toward Manzanillo, and work on that extension is being pushed to completion.

The Mexico, Cuernavaca and Pacific Railway, a road under enterprising American management, leaving the City of Mexico, climbs to a height of 10,000 feet above the sea-level, then descends into the charming valley of Cuernavaca, cuts its way through the mountain gorges amidst most beautiful scenery, has already reached the Balsas River leading into the Pacific, and has a comparatively easy course along its valley to the Pacific port of Acapulco.

The Tehuantepec route across the Isthmus has for many years been a competitor in expectancy with that of Nicaragua and Panama for the world's commerce. The canal project gave way to the Eades ship-railway scheme, but an ordinary railroad was finally completed some years ago. It was, however, cheaply and imperfectly constructed, and was without suitable ports at its

termini, and hence could offer no competition with the Panama Railroad. The road has now passed into the hands of an experienced and responsible English company, which will entirely rebuild the road, and the federal government has made contracts with it for the construction of good ports of capacity for the largest vessels, in which work the government will expend several millions of dollars. When these improvements are completed it is claimed this route will be able to successfully compete with the Panama Railroad for much of the Isthmus traffic.

The construction of lines of telegraph have not only kept pace with the railroad extension, but far exceeded it, and there are now in operation 42,500 miles. In addition to this the telephone system is established in all the principal cities and towns and with their adjacent villages.

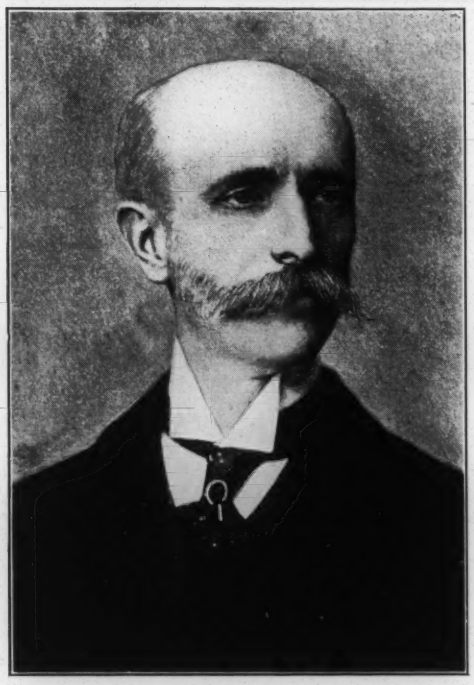


Hon. Ignacio Mariscal, Secretary of Foreign Relations

PUBLIC PEACE AND ORDER

The establishment of railroad communication and the ramification of the telegraph throughout the length and breadth of the country have not only brought new life and activity to the commerce and industries, but they have had a most salutary effect upon public order. Before this new epoch it was very possible not only for bandits and outlaws to maintain themselves in the mountain fastnesses and remote regions, but for revolutions to be hatched and grow into formidable proportions, owing to the inability of the government to concentrate troops. Now every part of the Republic is within easy reach of the federal authority.

Hence, the old-time visitor to Mexico on his return today is struck with the everywhere-prevailing evidence of peace and security to persons and property. Books of travel on Mexico written twenty-five years and more ago are full of hair-breadth escapes from brigands, assaults upon the stage coaches, kidnapping of the rich for ransom, and the depredations of robbers and revolutionists. The passenger trains between the City of Mexico and Vera Cruz each carried a car full of soldiers as an armed guard, and even with that precaution the male passengers usually wore side arms, and a guard of soldiers was kept at every station. No man of business or of importance ventured on journeys outside of the cities, large towns, or haciendas (plantation-houses surrounded by a high stone wall) without a number of friends heavily armed or a regular escort. Today trains run daily in almost every state of the Republic without any guards, assaults upon the stage coaches have long ago ceased, kidnapping is a thing of the past, robberies on the highways are almost unknown, travelers armed with pistols, rifles, and swords



Hon. José Y. Limantour, Secretary of Finance

(a common practice in the past) are rarely seen, and only in the remote and mountainous districts. The use of large bodies of soldiers to preserve peace and order has been supplanted by individual gens d'armes or policemen. Besides the visitor's own observations of security and peace, the old residents of Mexico will tell him that in this respect the country has undergone a complete transformation.

I think it may be safely asserted that life and property are as fully protected in Mexico as in the United States. It would be idle to say that murder, robbery, and disorder do not occur in Mexico, for that would be to assert that the passions of man have changed; but it is perfectly correct to say that today outlawry is of rare occurrence, and that in few countries of the world is better protection afforded to persons and property. In the past twenty years the telegraph lines have more than tripled in extent and in number of offices, and now at midnight there comes up to the national palace in the City of Mexico, from every near and remote town in the Republic, the message, "No hay novedad." It is like the cry of the mediæval night watchman, "All's well," that assured the citizen of peace and security.

The primary cause of this state of civil order has been the maintenance of a government of peace and of a continuous régime. Much had been done under Juarez to remove the causes of the revolutions, and under Lerdo a considerable advance had been made in civil government; but since the advent of General Porfirio Diaz to power, in 1876, there has been no foreign war and no serious disturbance of an internal character, the only exception being the outbreak of certain semi-independent Indian tribes. In the previous fifty years of the existence of the Republic, there had been as many presidents, the majority of whom owed their existence to revolutionary movements. The wretched story of Mexican history of that period is too familiar to be repeated here.

OTHER LATIN-AMERICAN REPUBLICS

The blessings which the era of peace and order attending the administration of President Diaz has brought to the country and the significance of the achievement will be better understood by a very brief reference to the other Latin-American states of the hemisphere during this same period. Every one of the five states of Central America has suffered from revolutionary movements and violent changes of government, and at times they have engaged in war with each other. Colombia has been torn by political dissensions,

and is even now undergoing the ravages of revolutionary movements. Ecuador has been the scene of many revolutions and the displacement of one president by another through armed force. Peru has suffered by a foreign war, whereby the most valuable of its territories were torn away, and one revolution has followed another in quick succession, with changes of rulers. Chile, once the most conservative and prosperous of the South American countries, has carried on an expensive foreign war, has undergone a bloody and exhaustive revolution, and, because of its hostile attitude to its neighbors, has been compelled to maintain a large army and costly navy. Bolivia, shut out from the sea by a jealous neighbor, has been in frequent turmoil and political disorder. The Argentine Republic, though greatly favored by nature and by progressive rulers, has not been free from revolutionary movements, and has undergone a serious financial disaster, which has greatly paralyzed its industries. Brazil, by a conspiracy in the army, expelled the emperor and established a republic; but that did not bring it peace, for the new government has had to contend with successive attempts at revolution. The history of Venezuela in the past twenty-five years has been one of repeated revolutions and changes of government.

From this hasty sketch of the other nations of the American hemisphere to the south, in contrast with Mexico, the brilliancy and the beneficence of the administration of President Diaz is made apparent. In a recent inaugural address to Congress, on again being installed as President, he referred to the achievements of Mexico in the past twenty-five years, and modestly stated that in it there were no brilliant deeds to chronicle. From that notable address I make this extract:

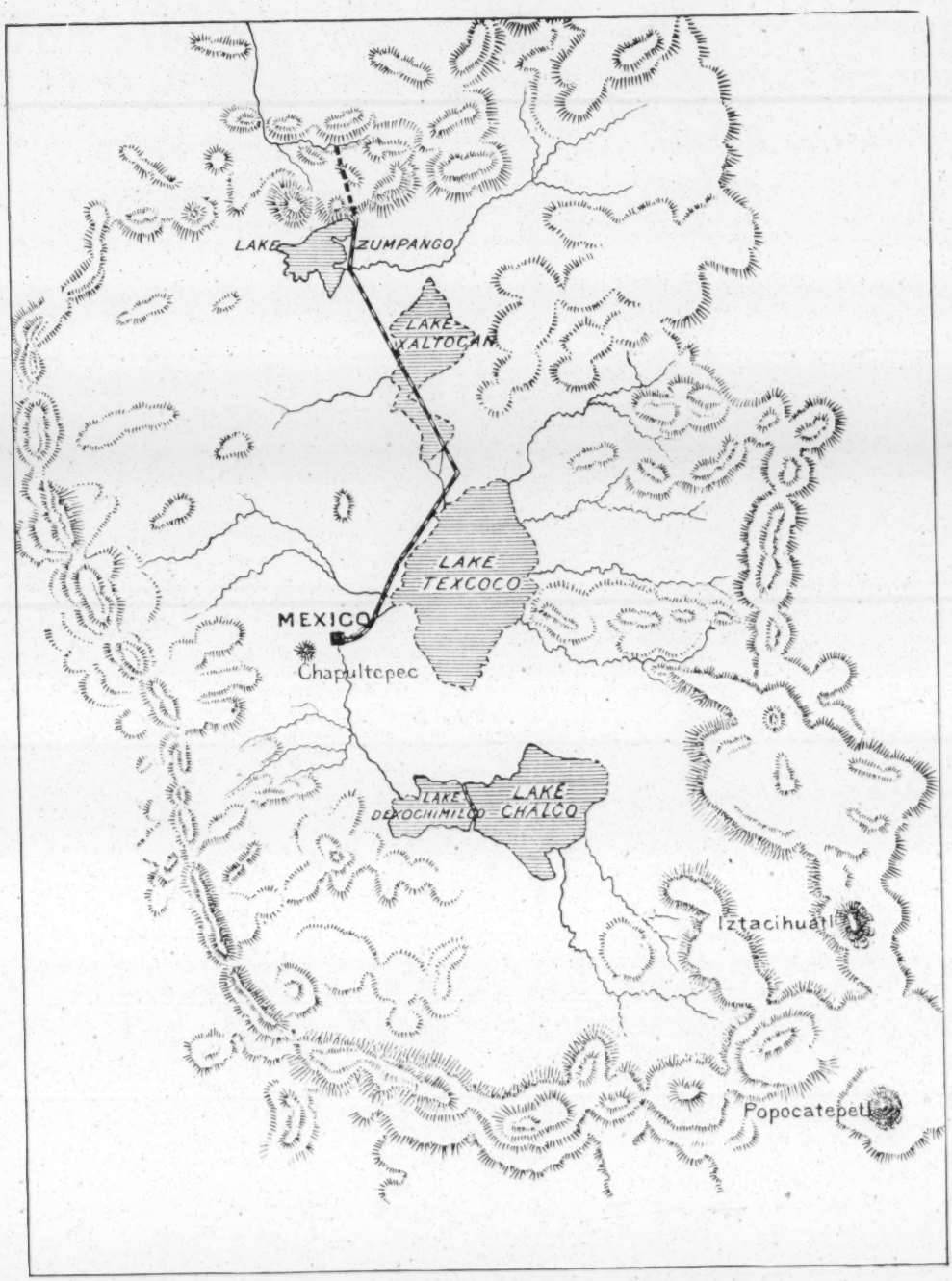
"If it were true that a peaceful and laborious people have no history, the administrative period I am about to review would almost be devoid of history. But, on the contrary, those nations that deserve to be called happy in the only intelligible sense of the word, far from being without a history, have a very glorious and interesting one, if besides being peaceful and laborious they are also progressive.

"That history is the history of their progress, their achievements, their growing prosperity, of the improvements of every kind which they have introduced—a history which, in this modern age and the present constitution of civilized societies, is as interesting as that of their past and just as deserving of attention."

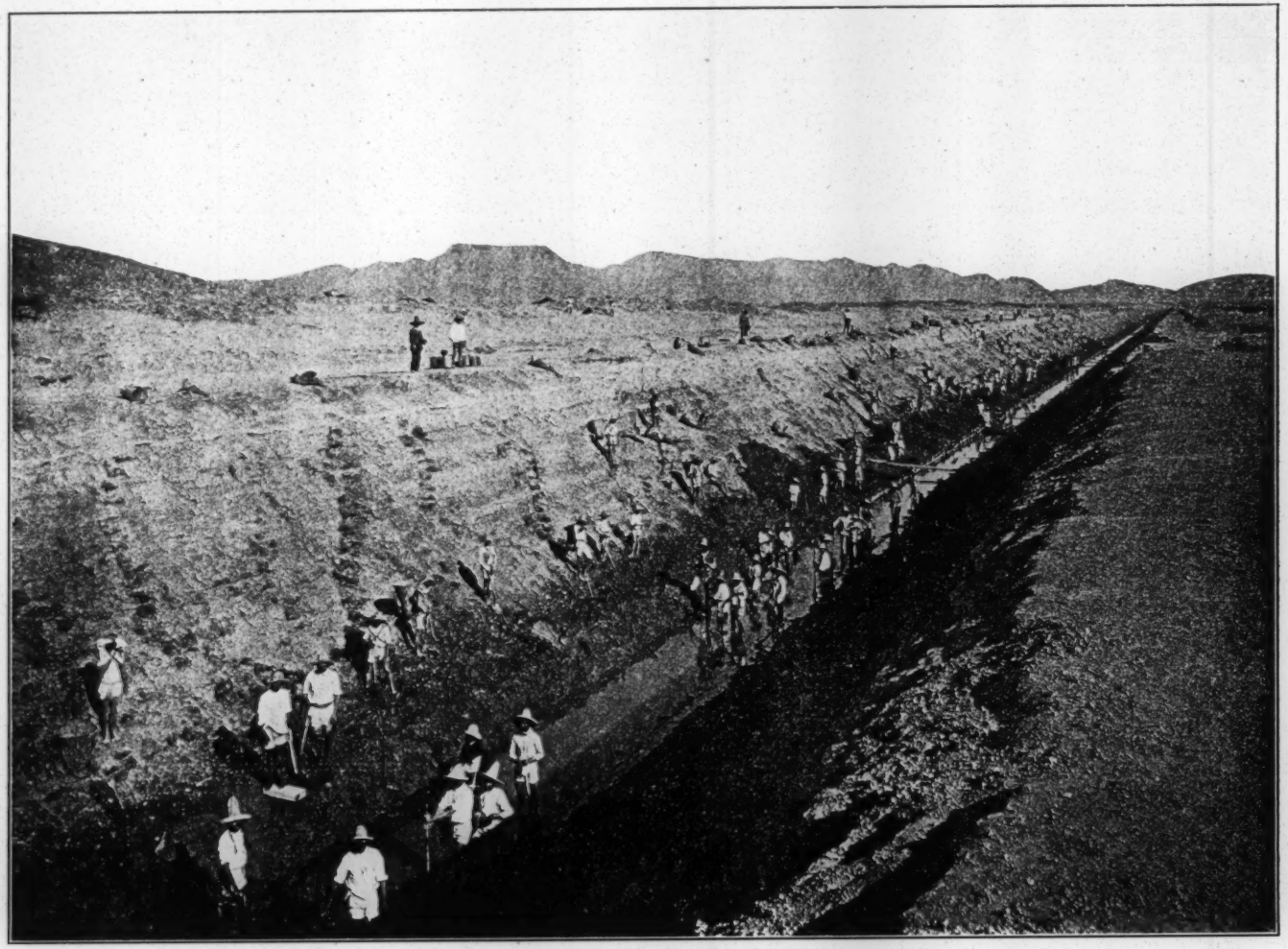
DRAINAGE OF THE VALLEY OF MEXICO

Next in importance of a geographic character to the vast railway system, which has done so much to transform the face of the country and the habits of the people, is the great drainage canal of the Valley of Mexico and its adjunct improvements. As is well known, the City of Mexico is situated in the bottom of a valley entirely surrounded by mountains, with a series of lakes on the southeast and northwest, draining into a salt-water lake which has no outlet, on the shores of which this most ancient city of America was located. Owing to its location, the capital was constantly exposed to overflows, and from time to time it has been visited by most destructive inundations. Besides, on account of the necessarily imperfect sewage system, the death rate of the city has always been very high.

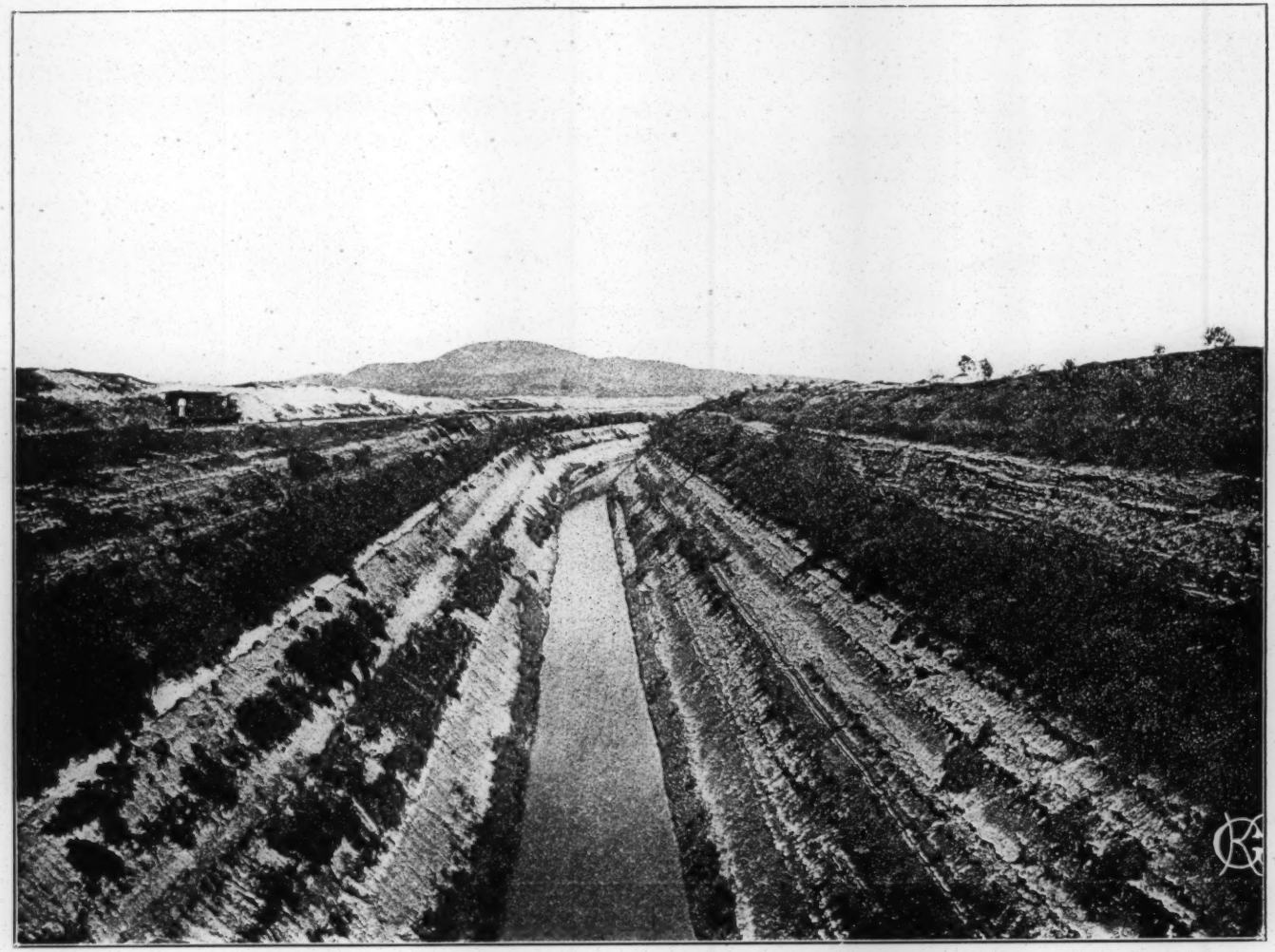
For six hundred years, from the time of the ancient Aztec kings, the artificial drainage of the waters of the valley has been the vexed problem of each succeeding government. The Spanish viceroys exhausted the engineering science of their epochs, spent hundreds of millions



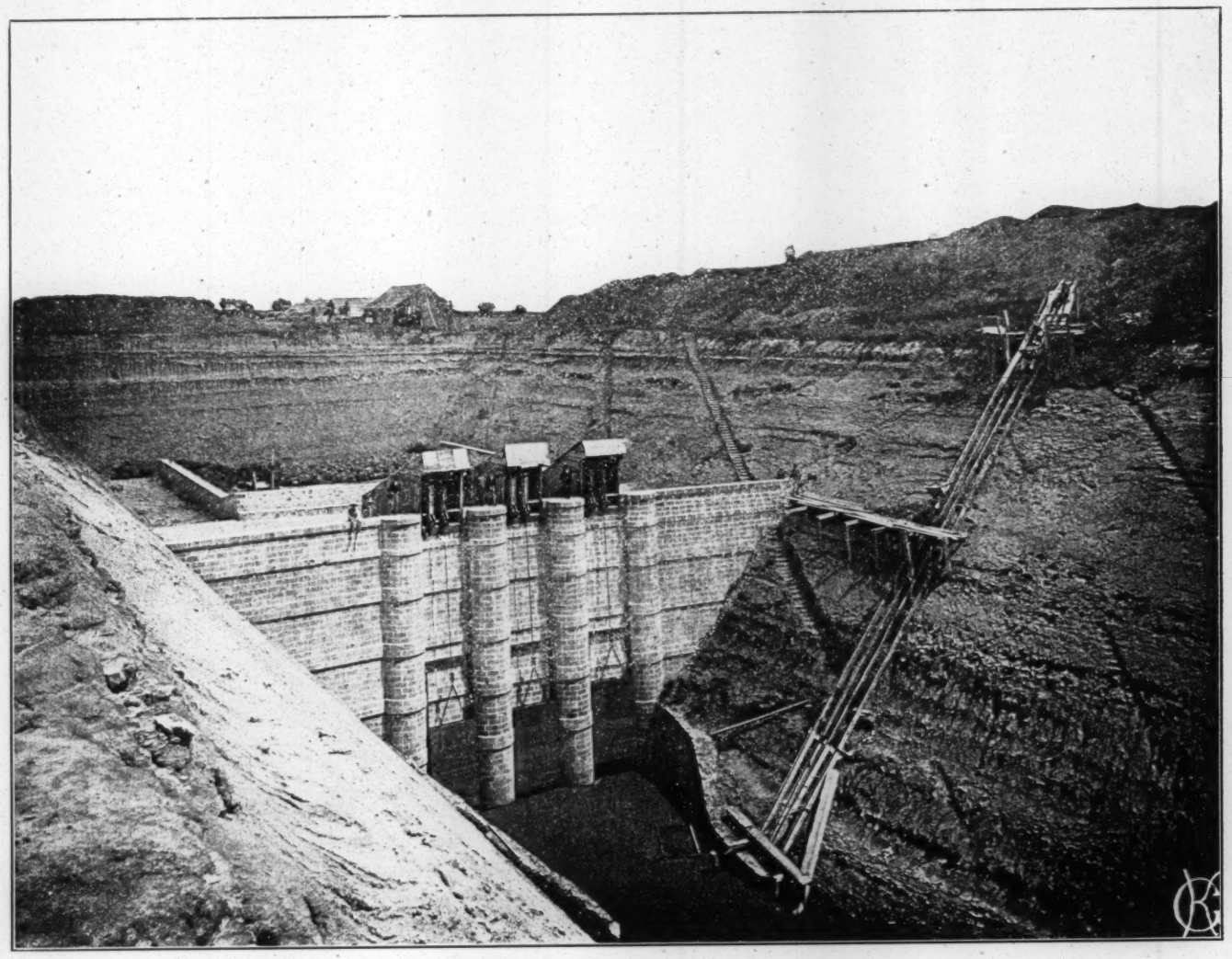
Map showing Area Drained by the Great Canal



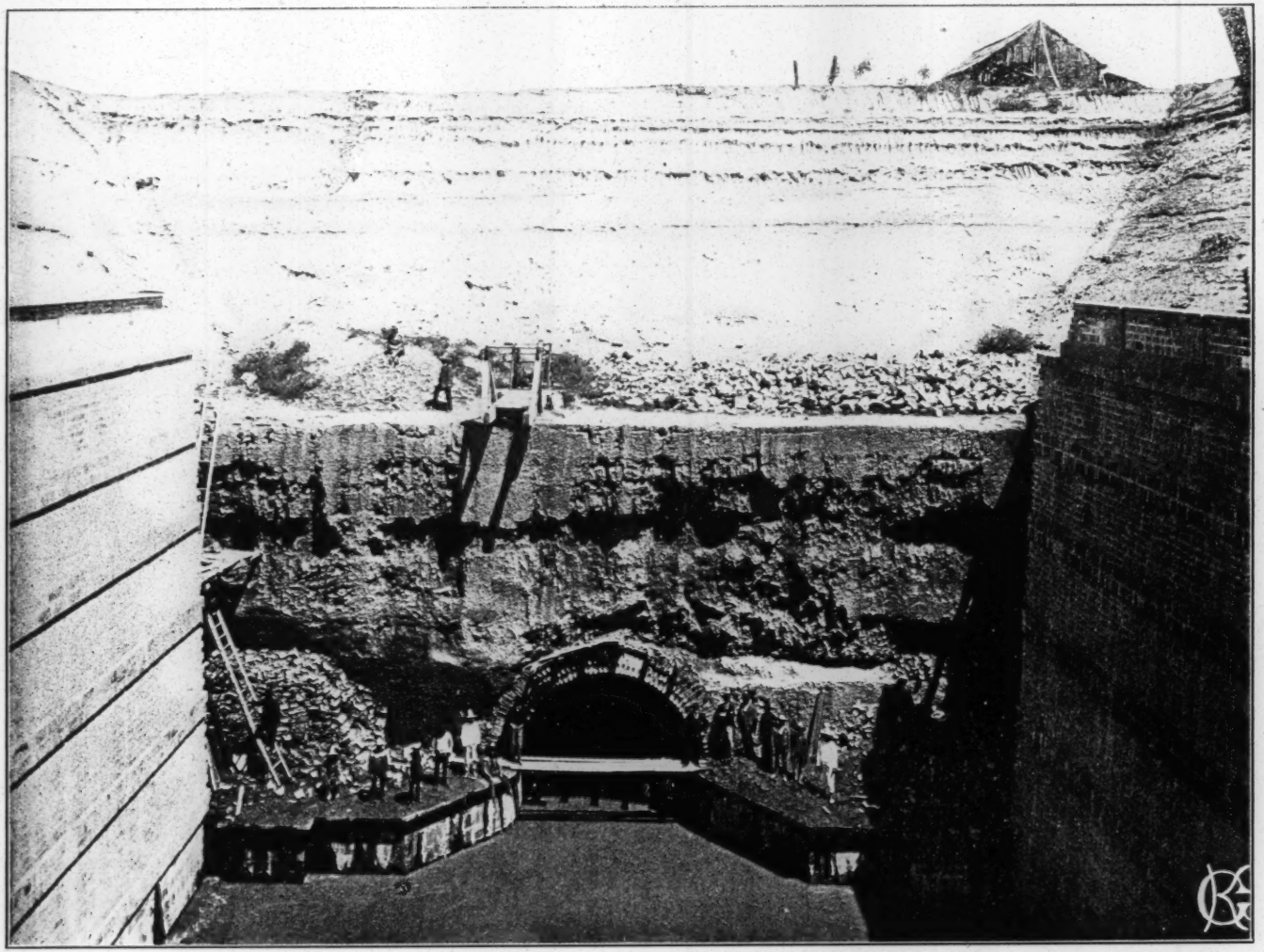
The Drainage Canal, under Construction



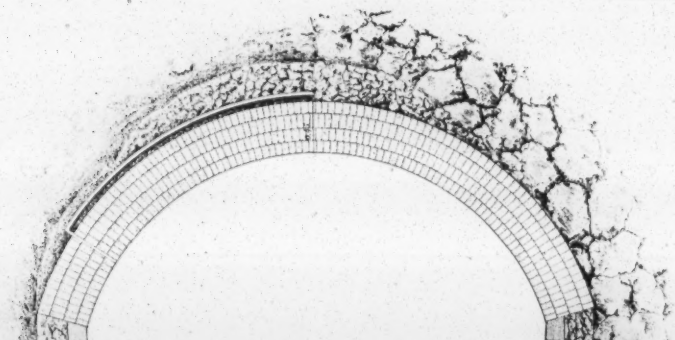
The Drainage Canal, Completed



The Drainage Canal Water Gate



The Mouth of the Drainage Canal Tunnel



Cross-section of the Tunnel

Width, 4.180 meters; Height, 4.286 meters

of dollars, and sacrificed the lives of hundreds of thousands of the natives in the vain attempt to solve it. During the first half century of the Republic spasmodic and feeble attempts were made to effect the drainage, but succeeding revolutions or foreign wars deprived the government of the financial means to accomplish the herculean task. It was reserved for President Diaz to achieve success in this great enterprise. He was forced to delay the beginning of the work for some years until the financial condition of the public treasury would justify it and until he was enabled to secure contracts with experienced engineers and trustworthy capitalists. Finally, for the last time, the project was entered upon and was successfully completed two years ago. The system consists of a tunnel six miles long, extending through the mountains, and with it is connected a canal, the total length of the waterway being nearly thirty-seven miles. It cost $20,000,000, including the drainage of the city, and may justly be said to take rank with the great achievements of modern engineering.

The city is now safe from overflow, and the last step in this great work is in process of completion—the connection with the canal and tunnel of a new and perfect system of drainage for the capital. For some time past the streets have been torn up in laying the drainage

pipes, but this work is now practically finished, and the municipality, with the aid of $2,000,000 from the federal treasury, is engaged in the task of relaying the streets with asphalt pavement. When this is completed the City of Mexico will be one of the cleanest, healthiest, and prettiest cities in the word.

THE CITY OF MEXICO

Humboldt, in his visit to America at the beginning of the last century, pronounced it the best-built city on this hemisphere. During the rule of Spanish viceroys, under the stimulating influences of the great riches yielded by the mines of Mexico, the capital contained a population much greater than that of any other city of the new world, and it numbered among its public buildings a cathedral unequaled in size and architectural attractions, the result of a hundred years of labor and pious contributions; institutions of learning and beneficence, public gardens and drives without rivals in any other of the western countries. But during the first fifty years of the independence of the country, torn by civil dissensions, the capital remained stationary, or at times even retrograded, while New York and Philadelphia, as well as Rio de Janeiro and Buenos Ayres, outstripped it in the race for population and development. All that was needed, however, to enable City of Mexico again to take its place the among the first cities of the hemisphere was the preservation of public order. With the establishment by General Diaz of a government of peace and security, beginning at the close of 1876, the capital gave the first symptoms of returning prosperity. When it became apparent that the new chief of the state had the power to preserve a continuous government of law, and the executive ability to awaken the dormant resources of the country, under the new régime of peace which had at last dawned upon the country, the City of Mexico entered upon an era of prosperity unparalleled in its history. Population began to flow in from the surrounding states; native wealth, which had been hidden away or deposited in Europe, returned to the natural channels of trade, and foreign capital, which during the time of disorder had kept away, began to seek methods of investment. Before the first term of Diaz came to a close, the construction of railroads had been entered upon under government aid.

Today the capital of the Republic presents to the old-time resident the most impressive evidence of the growth and prosperity of the country. During the Diaz administration it has nearly doubled in population, the census of 1900 showing over four hundred thousand souls. The area of the city has greatly extended, especially in the suburbs to the west and northwest. Formerly it was regarded as unsafe for a well-to-do family to live outside of the city gates. As soon as the new government could give an assurance of safety to life and property, the movement of suburban enlargement began, and now the most beautiful and commodious private residences are found in the quarter named, far away from the noise and bustle of the center of the city. In all parts the price of real estate and of rents has largely advanced, especially to the west of the national palace, and marvelous stories are told of the enormous increase in value in suburban real estate—many hundreds per cent; and it is gratifying to be informed that wide-awake Americans have shared in the profits, the projectors of "La Colonia Americana," laid out by a New Jersey corporation, being among the most successful promoters.

IMPROVEMENTS OF THE CAPITAL

The evidences of progress and prosperity are to be seen on every hand. The streets are much more crowded

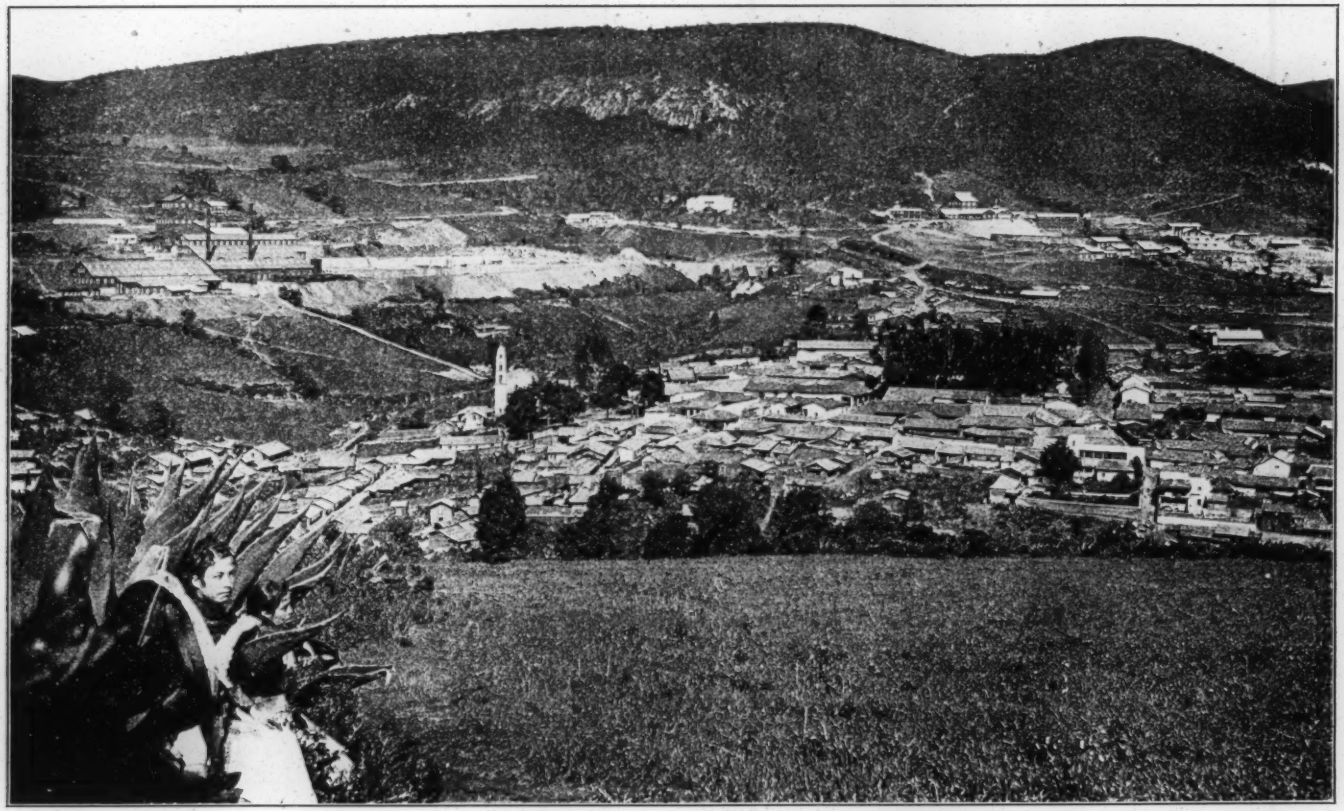
than formerly, the foreigners are more numerous, and among these Americans predominate. The shops are enlarged and multiplied in number. In the central part of the city substantial houses have been torn down to give place to magnificent business edifices constructed of steel and marble, with electric elevators and all modern appliances of a first-class establishment in New York or Paris. The government has taken the lead in this era of reconstruction. A new and extensive general hospital, one of the largest and best equipped in the world, and a new penitentiary, as perfect as the advance in humane study could make it, have just been completed. The foundations of a Hall of Congress, which promises to be an imposing edifice, are being laid, and the appropriations have been made for a new department post-office and other public buildings which will greatly beautify the city. The many friends in the United States of the late Matias Romero, so long the honored minister of his country in Washington, will be glad to learn that the great advance in real estate largely enhanced his modest property in the capital. In his will he stated that he owed all he possessed to his country, and he devised the great body of his estate to the founding of a home for indigent old people, which will constitute one of the improvements of the city.

The ancient system of street railways is undergoing a great transformation. It has passed into the hands of a foreign syndicate, which is supplanting the old method of mule traction with electricity, and is replacing the old-fashioned and rickety cars with those of improved modern construction. In fact, the Diaz epoch may be called the régime of electricity, as in his day it has been introduced very generally into the houses and streets, not only in the capital, but in all the principal towns of the country.

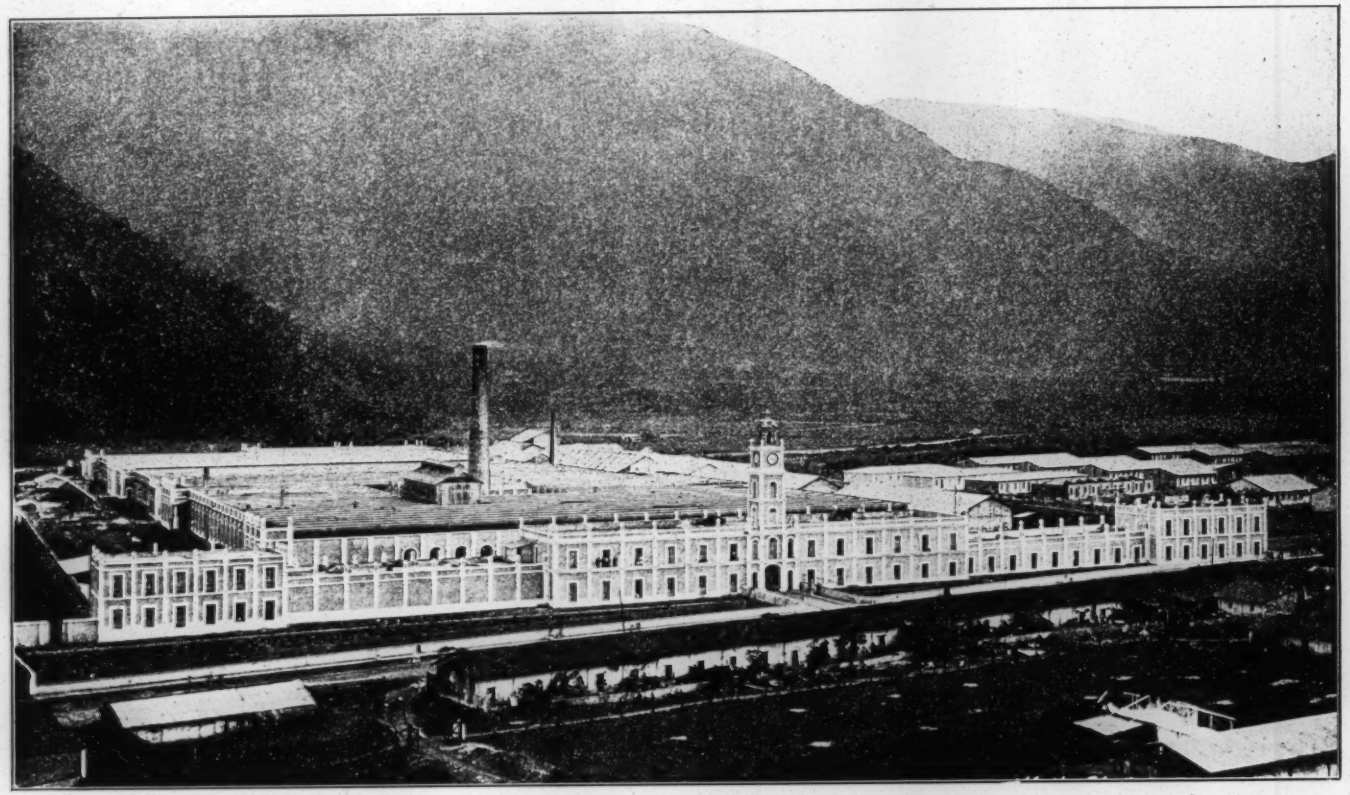
One of the chief attractions of modern Mexico is the fashionable driveway, the Paseo de la Reforma. It has been greatly widened, ornamented at frequent intervals with statues of public men and artistic figures, and extended to the Castle of Chapultepec, lying nearly a league away from the center of the city. At the foot of this picturesque castle there has been laid out a beautiful park, which is being constantly enlarged and adorned, and which will soon rival the most famous pleasure grounds of the world. The old visitor to Mexico will, however, have to mourn the loss of many of his dear friends, the so-called "Montezuma trees," the grand old cypresses, some of the most colossal of those surrounding the castle having died. In its present setting of green and flowers, with paved roads and objects of art, the old castle of the Montezumas and the Spanish viceroys appears more lovely than ever. The view from its summit, embracing a wide area of the broad valley, everywhere covered with verdure, the waters of the lakes sparkling in the sunlight, the capital, with its towers and wide-spreading edifices, the many villages nestling among the semi-tropical vegetation, the amphitheater of high mountains surrounding and shutting in the valley, with the lofty volcanoes, clothed with eternal snow, standing as hoary sentinels of the scene—all this constitutes a vision, in my judgment, unsurpassed in any other part of the world. In this day of prosperity and improvement, no wonder the Mexican is proud of his capital and his country.

IMPROVEMENT OF THE SEAPORTS

Another geographic phase worthy of notice is the transformation which has taken place in several of the seaports of the country. It is related that a King of Spain, on a visit to Cadiz, was seen with a glass scanning the horizon across the waters to the west. A court-



Mining Camp at El Oro



Cotton Factory at Orizaba

ier asked him what was the object of his search, and he replied that he and his ancestors had spent such vast treasures on the fortress at Vera Cruz he thought he ought to be able to see some of the towers of the castle rising out of the sea! The story illustrates the marked difference in the Spanish rule in Mexico and that which prevails today. The object of Spain was to keep off intruders and preserve the commerce of Mexico as a monopoly for the mother country. The policy of the present régime is to invite to its shores all the commerce of the world and afford free access to its ports.

The country has heretofore labored under a serious embarrassment in the accomplishment of this purpose, in that on the Atlantic or Gulf coast it had no harbor worthy of the name. Vera Cruz, the principal port, was nothing but an open roadstead. But during the administration of Diaz a thorough system of improvements has been entered upon and is now approaching completion. In shutting off the northern passage by a sea-wall, connecting the island upon which stands the famous Spanish castle with the mainland, a comparatively safe harbor is afforded to vessels, and the landing and customs facilities are being greatly increased. In these improvements the federal government is spending several millions of dollars. Tampico possessed an excellent harbor, but it was rendered almost useless by a bar which cut off access to all but vessels of very light draught; but under contract with the government a system of jetties similar to that at the mouth of the Mississippi has been successfully constructed, and a channel of 23 feet has been secured across the bar. As a result of this improvement and of the construction of a railroad connecting the port with the capital and with the important city of Monterey, Tampico is aspiring to rival Vera Cruz in its foreign commerce.

The ports of the Pacific coast possess natural advantages and adaptability to shipping not found on the Gulf coast, but some of these also are undergoing important improvements, and when the railroads projected and now in course of construction across the Sierra Madre Range reach them, they will doubtless participate more fully in the great industrial and commercial development of the country.

GROWTH OF FOREIGN COMMERCE

In view of this development, it would naturally be anticipated that foreign commerce would feel the effects of the general prosperity, and the statistics fully sustain this expectation. In 1875, the year previous to the accession of President Diaz, the total imports amounted to less than $19,000,000, and during the fiscal year of 1899 the imports had increased to $106,000,000 in silver. The same gratifying condition has attended the export commerce. In 1875 the exports were $27,000,000, and during the last fiscal year they amounted to $150,000,000, thus showing the enormous increase of 500 and 600 per cent. In the order of their importance the leading articles imported were as follows: Machinery, cotton textiles, iron and steel, wines and liquors, wool textiles, paper, and crude cotton.

It is gratifying to note that the United States leads all other countries in the amount of this import trade, having about one-half of the total, Great Britain coming next with 20 per cent, France and Germany with 10 per cent each, leaving 10 per cent divided among Spain, Belgium, and other countries. The leading classes of imports from the United States are given in the order of their importance: Coal, wood and lumber, cotton, steel rails, mineral oil, vegetable oils, carriages (railroad, etc.), cotton cloths, electrical apparatus, wearing apparel, hardware, sewing machines, furniture, agricultural implements, boots and shoes.

Although there has been this greatly

enlarged import commerce, it is by no means as large as it should be, taking into consideration the fact that the country possesses nearly fourteen millions of people. There has been cause in the past for the comparatively small import trade in the disordered condition of the country, the poverty of its inhabitants, and the habit of the mass of the people of subsisting on the bare necessities of life. The enlarged commerce under the Diaz régime illustrates the effect of peace and prosperity in enabling the inhabitants to consume more largely of comforts and luxuries from abroad. If this era of peace and good government shall become the fixed order of the country, there is no reason why the present import trade may not be doubled within a few years, and if American merchants and manufacturers will study more intimately the conditions of trade in Mexico, they will be able not merely to maintain their present preëminence, but even to increase their ratio.

Examining the details of the export trade, we find that the United States is extending to Mexico liberal reciprocity; for, while we enjoy only about 50 per cent of her import trade, she finds in our country a market for about 75 per cent of all the products she sends abroad. Great Britain follows with 10 per cent, France with 4 per cent, and Cuba leads Germany in the consumption of Mexican products. If we also consider the mining and agricultural conditions of the country, we shall see that it possesses almost boundless capacity for the increase of its export trade, if the present state of order and government shall continue. The leading products now exported are, in the order of their importance, as follows: Silver, henequin or sisal hemp, gold, coffee, cattle, lead, copper, hides, and precious woods.

The facilities for conducting the foreign commerce have been greatly multiplied. When I first visited the country, as I have mentioned, the only regular means of communication with the United States was by a steamer to and from New York, sailing once in three weeks. Today steamers sail for that port from Vera Cruz and Tampico twice a week, a new line has been recently established to New Orleans, lines of steamers are plying regularly from the two Mexican ports mentioned to England, France, Germany, and Spain, with many irregular steamers to various parts of the world. Then only one railroad reached the seacoast, and that only from the capital. Now four more lines are in operation, connecting the seaports with almost all the states of the interior. Then there was no railroad communication with the United States. Today four different lines enter Mexico from her northern neighbor. Of the total import and export trade about two-thirds in tonnage is carried by ocean vessels and one-third by the railroads.

The subject of a reciprocity treaty between the two republics has been often mooted, and it is believed that a judiciously framed convention of this character would largely increase the trade between the two countries. But since the unseemly treatment accorded to the Grant-Romero reciprocity treaty of 1883 by the Congress of the United States, it is presumed that Mexico will be slow to make any new advance on the subject. And from the treatment which is now being extended by the same body to various treaties negotiated under President McKinley's direction with different foreign powers, I apprehend the Government of the United States will be slow to propose such a measure to Mexico.

GOVERNMENT FINANCES

The most conspicuous evidence of the good effects of the management of affairs by President Diaz is seen in the

financial condition of the country, both official and private. When he assumed control, the financial condition could hardly have been more desperate. The revenues of the government since the re-establishment of the Republic had almost constantly shown a deficit. The public creditors, domestic and foreign, were unsatisfied. For many years the interest on the foreign debt had been defaulted ; its bonds had no value at home or abroad, and were not quoted in the money markets of a single city of the world. There were a few private banks in the capital, but no banking system existed in the Republic. As a consequence, and because of the risks of communication, exchange between the different cities of the country was very high, standing at 5 to 8 and sometimes 10 per cent. Although the revenues barely reached $20,000,000 annually, it was very difficult to collect the taxes on account of the sluggish condition of commerce and industries.

The rigid enforcement of peace and security by General Diaz soon began to bear fruit in a marked improvement in financial affairs. The government early felt its effects in, first, a gradual, and finally, a rapid increase in its revenues. I do not propose to confound my hearers with long tables of figures which are the usual accompaniments of the discussion of financial and commercial questions. It will be sufficient to state that the revenues, which before had been barely $20,000,000 annually, soon doubled, then trebled, and within ten years had increased more than sixfold, reaching as high as $140,000,000.

This marvelous increase had its natural effect upon the policy of the government. First, it enabled it to extend its aid toward greatly needed public improvements. It not only granted concessions to an extensive system of railroads, but it also contracted to pay the different companies liberal subsidies, without which it would have been impossible for most of them to be built. It also entered upon an expensive system of harbor improvements at Vera Cruz, Tampico, and other ports in encouragement of commerce. It made the long-needed drainage of the Valley of Mexico a success. Every department of administration felt its wholesome effects—the post-office and telegaph service, government buildings, the schools, the army, and the navy.

REDUCTION OF TAXATION

This increase in the revenue also enabled the government to take another important step, to wit, the adoption of a complete revision of the system of taxation. Heretofore it had been the practice of the government to rely upon the import and export duties for the greater portion of its revenues. A new tariff was adopted which, while it preserved the protective system, was much less burdensome to foreign commerce, and abolished almost all the export duties on Mexican products shipped abroad. A system of internal taxation was adopted which made the levies much more equal in their effects, but the general result was a large reduction in taxation.

This era of financial prosperity put it into the power of the President to remove a grievous burden upon commerce which had long been the dream of progressive Mexican rulers, the abolition of the "alcabalas," a system of taxation whereby duties were collected on products and merchandise passing from one state to another. It had been declared abolished by the liberal constitution of 1857, but the poverty of the state treasuries had heretofore made it impossible of realization. The abounding prosperity of the Diaz régime had extended to all the states, and in 1896 the "alcabalas" ceased to exist ; and with them has disappeared another mediæval revenue annoyance, the "octroi" taxes, collected at the city gates on all articles

of consumption entering the city, a system still in force in many of the countries of Europe.

The reduction made in the various branches of taxation has largely diminished the receipts of the national treasury, having brought them down to about $60,000,000 annually, but this sum proves more than sufficient for all the current needs of the public service, as at the end of each fiscal year a considerable balance remains subject to appropriation for special purposes.

This financial revival brought upon the administrative departments multiplied work and new problems to solve, and President Diaz sorely felt the need of a man of business capacity, of thorough uprightness of character and industry for the portfolio of Secretary of Finance, and he was most fortunate in his ultimate choice. Jose Yves Limantour is a gentleman of culture and inherited wealth, to which he has largely added by his skillful business management. He had no taste for political life, and when the call came to him to accept this post he was reluctant to do so, and only yielded from a high sense of patriotic duty. To him greatly is the President indebted for the splendid success which has attended the reorganization of the taxation methods just mentioned, for the establishment of a well-ordered banking system, and for the rehabilitation of the foreign credit and the public debt.

THE PUBLIC DEBT

This latter work has been most successfully carried out. From the earliest days of independence the public foreign debt has been a fruitful source of embarrassment and shame for the Mexicans. In 1825 loans were effected in London for £20,000,000, and only a few years elapsed before the recurring revolutions forced default in interest, and for years this debt remained nominally of no value. In 1851 the creditors had to accept a refunding, with loss of accrued interest and reduction of the rate, but this proved only a temporary expedient. New foreign debts to English, French, and Spanish capitalists were added, only to be soon defaulted or repudiated. This latter action brought on the tripartite intervention of 1861 which led to the Maximilian Empire. The situation was most deplorable when Diaz came into power, but the financial improvement which he inaugurated soon began to create confidence among European capitalists, and the rapidly growing revenues finally enabled the Secretary of Finance to re-establish the government credit abroad. By the year 1888 he had succeeded in consolidating all the discredited foreign indebtedness of every character whose legitimacy could be established and issuing therefor new gold bonds bearing 6 per cent interest, and from that date the treasury has not failed to pay the interest promptly. This action, with the continued improvement of the finances, placed these bonds at a premium of 102½ in London, and advances were made to the government by leading foreign bankers to convert the foreign gold-bearing debt into a new loan at 5 per cent interest, and this transaction was consummated last year, the bonds being taken by three reputable banking houses of Berlin, London, and New York. The entire foreign indebtedness of Mexico is therefore now represented by a single 5 per cent gold loan, with coupons payable in the three cities just named, amounting to $115,178,000.

This was accepted as a great triumph for the government, and justly so when we recall the depth of utter bankruptcy from which the country has been reclaimed. Its credit is now equal to that of some of the first powers of Europe and much above that of any other of the Latin-American republics. If we

take the three South American countries which have been the most prosperous and have always commanded the highest credit in London and compare them with Mexico, taking recent quotations of their foreign loans of the same date, we have this result :

	London quotations.
Argentine Republic 6 per cent loan..	93
Brazil 4 per cent loan.....	62
Chile 5 per cent loan.....	92
Mexico 5 per cent loan.....	99

In addition to its foreign loan, Mexico has what is termed an interior debt, payable in silver, amounting to a sum which if converted into gold would represent approximately $62,000,000, created by subsidies to railroads, obligations for public improvements, etc. Thus the entire indebtedness of the republic amounts to about $177,178,000. It may be profitable to make a further comparison. This debt is borne by a population of 13,570,000. Canada, her more northerly neighbor, has a debt of $345,160,000, with a population of only 4,833,000 souls. In other words, Mexico's indebtedness is $13 per inhabitant, while that of Canada is $71 per inhabitant.

In connection with government finances, it may be well to call attention to the fact that Mexico is upon a silver basis, and that all business transactions are conducted upon that basis. The prevailing opinion is that it is very advantageous to the country; but there are some of its most intelligent people who contend that the system is injurious, and that at no very distant period Mexico will adopt the gold standard. But no such change is considered by the government or by the ruling financial interests.

THE FOREIGN RELATIONS

It will not be possible in this paper to discuss at any length the political questions which arise in connection with the present state of Mexico, but I must make a brief reference to its relations with foreign countries. When President Diaz assumed the reins of government the evil effects of Maximilian's attempt to establish an empire on the ruins of the republic were yet being felt. The country had not recovered from the exhausted condition into which its resources had been brought by the long, bloody and expensive war. The passions of the contending parties, which had been so deeply embittered by that terrible contest, had not altogether calmed down ; and the foreign nations which had taken part in or sympathized with the intervention—France, Great Britain, Austria, and the other European powers—had not renewed their relations with the restored republican government.

It was important for the well-being of the country that the wastes of war should be restored, that the people should bury their partisan rancor, and especially that the two first-named nations should renew their diplomatic intercourse, because from them would come much of the capital and skill to develop the country's great resources. Time and statesmanship were requisite for this task. One of the first acts of General Diaz toward the accomplishment of these ends, after he became well seated in power and when the step could not be interpreted as a sign of weakness, was to call into his counsel two of the most prominent and able men in the government of his predecessor, President Lerdo, whom he had driven from power—Manuel Romero Rubio and Ignacio Mariscal—the former the head of the Lerdo cabinet, and the latter for so many years the accomplished Mexican Minister in Washington. The fact of the acceptance by these two men of office under the Diaz government was evidence of the consolidation of all parties and all interests in working for the future peace and prosperity of the Republic.

For twenty years Mr. Mariscal has served at the head of the cabinet as secretary for foreign relations, except when absent for a time as minister at London, and to his skillful and prudent management are in great measure due the satisfactory relations which Mexico has established with the other nations of the world. France and Great Britain soon overcame their scruples growing out of the death of Maximilian and the circumstances attending the intervention and reëstablished diplomatic relations. Their action was soon followed by all the other leading nations of Europe, except Austria, and even that monarchy has recently renewed diplomatic intercourse, and has buried any feelings of bitterness for an act which, under the circumstances, was for Mexico a political necessity, and would have been committed by any other civilized nation under similar provocation.

Mexico has also cultivated more intimate and friendly relations with the other Latin-American republics, and at no time has her intercourse with them been more pleasant than at present. By her larger population, by her worthy example of a quarter of a century of unbroken peace and constitutional government, and by the consequent era of unexampled development and prosperity, Mexico stands today at the head of the Latin-American states, and when it was suggested that the time was ripe for the holding of another Pan-American international congress similar to that which assembled in Washington eleven years ago under the direction of Mr. Blaine, it was unanimously agreed that the Mexican government was the proper one to issue the invitations, and that its beautiful capital was the ideal place in which the representatives of all the Americas should assemble. Whatever may be the outcome of the international congress now in session in the City of Mexico, I am sure every one of its delegates will leave that country with a higher estimate of its government, its people, and its resources.

MANUFACTURES AND MINING

This paper is already so extended that a number of topics of importance can be only alluded to very briefly. The protective system prevails in Mexico, the tariff on imports being regulated both with a view to securing revenue and to stimulate and protect domestic industries. Under this system manufactures have shared largely in the general prosperity of the country and have very greatly increased in production and variety, the chief attention being given to the manufacture of cotton fabrics.

Mining has for three centuries been the leading industry of Mexico, its output of silver usually standing first in the world's production of that metal. The new order of affairs has imparted fresh vigor to this industry, and a large amount of American capital has been invested in mining. The United States tariff on lead-bearing silver ores has also led to the establishment of large smelting works in various localities, a comparatively new industry in the country. In recent years the number of mines has greatly increased, the output of silver reaching near $70,000,000 annually, or over one-third of the total production of the world. Gold mining has had new development and is steadily increasing in its yield. Copper exists in various parts of the Republic, and the prevailing high price of late years has stimulated its production. The great want of the country in the mining industry is an abundant supply of good coal. Deposits have been found in the Rio Grande region, but the supply as yet is entirely inadequate to the needs of the country, as fuel for locomotives, mining, and domestic uses is still high and scarce.

AGRICULTURAL RESOURCES

Agriculture stands next to mining as

an industry, its total valuation being considerably greater, but its export value being less than the precious metals. Farming on a large scale has been quite profitable, the price of corn, the chief article of food of the masses, being usually twice as high as in the United States, as it is protected by a heavy duty. The production of sugar, on large plantations, is also a profitable industry, but the yield is barely sufficient for the home consumption; and although possessing a large area of sugar-producing lands, the country has as yet never been an exporter to any considerable extent. The most promising agricultural industry for development is coffee culture, there being vast areas well adapted for it, and its exportation has considerably increased of late years. Many of these lands have recently passed into the hands of American companies and citizens, and quite an impetus has been given to these enterprises, as well as others for the development of rubber. But most of these enterprises are still in the incipient stage, their permanent profit not yet having been fully demonstrated.

EDUCATION AND SOCIAL ADVANCEMENT

Did time permit much might be said of the social advancement of the people under the Diaz regime. In the past twenty-five years special attention has been given by the Government to educational matters, particularly to the public primary schools, which are now maintained in every political district. Their influence and the general prosperity are beginning to be felt in the elevation and intelligence of the masses. Newspapers are more widely circulated and read. Twenty-five years ago the circulation of the most widely read newspaper scarcely reached 15,000 copies, and that was regarded as phenomenal. Newspapers today issue fifty to sixty thousand copies, and they are read largely by the common people. The wages of mechanics in the capital and along the lines of railway have increased fifty per cent, and the working classes live in greater comfort.

As illustrative of the quickened moral standard of the people, a strong temperance movement has been organized in the City of Mexico and has extended to the other important cities. During my recent stay in the country, it was being visited by one of the officers of the Woman's Temperance Christian Union of the United States, and though it was quite unusual in that land for a woman to appear on the platform, this lady in her crusade against intemperance was received with enthusiasm, gratuitous use of the largest theaters was tendered her, she was introduced by the governors of states, and given free access to the public schools.

For a generation past Mexico has occupied the most advanced position of any of the Latin-American states respecting religious toleration, absolute freedom of worship being guaranteed by the constitution and enforced by the government. The mass of the people are devout Catholics, but the present archbishop is a man of liberal views, and he has done much to reconcile the people to the new order which Juarez established after the long and bloody war against the clerical party. The Protestant movement at first evoked opposition and violent outbreaks, but all that has passed, and its propagandism is peacefully tolerated in all parts of the land. Compared with the Catholic Church, its adherents as yet are few in numbers, but it has exerted a marked influence on that church. The morals and education of its clergy have been raised. The necessity of more preaching is recognized, pews are being introduced, the churches are cleaner and less

gaudy in their interior, and the political utility of some religious division among the people is seen.

AMERICANS IN MEXICO

I must not close this paper without a reference to the Americans in Mexico. From the beginning of the Republic our countrymen, owing to the proximity of its territory, have made investments in that country and embarked upon various enterprises; but not until the reign of peace and order was assured by President Diaz did they go there in large numbers. They now constitute the largest foreign element in that country. The American colony in the City of Mexico is not only numerous, but prosperous and well established. It sustains a well-equipped club, an excellent hospital, and has all the paraphernalia of a well-ordered society intent on getting the most out of life, such as golf links, base-ball, women's clubs, afternoon teas, literary circles, etc. Americans have superintended the construction and are now directing the operation of some of the leading railroads. They have invested largely in mining, and colonies of American miners, numbering several hundred each, are to be found in different states. They have purchased large tracts of land for the development of coffee, rubber, and other agricultural products. Millions of dollars of bonds of the federal, state, and city governments have been sold in the United States in the past ten years. Many stock companies have been organized in various cities of the Union to develop and carry on enterprises in Mexico. Where the object and location of these companies have been judiciously chosen, and they are under experienced and prudent management, they are likely to prove successful, but money can be squandered in Mexico as readily as in other countries.

As a rule, the American residents in that country have found adequate protection for their persons and business. Occasionally complaint is made to our Government or through the newspapers of injustice on the part of the courts or authorities, but when investigated the complaint is generally found to originate either in a want of knowledge of the system of jurisprudence in force in that country (the civil law) or from an undue bumptiousness on the part of the American. Our citizens who voluntarily go to Mexico should bear in mind that they are in a community of a different race, language, religion, customs, and system of judicial procedure from ours, and if they adapt themselves to these changes they are quite unlikely to encounter embarrassment or trouble. Our countrymen, our capital and enterprise, are welcomed by the government and the people, and there is a wide field for the exercise of our surplus capital and energy.

Our political relations with the neighboring republic were never more cordial than they are today, and there is every prospect that the two nations will continue to enjoy together the blessings of peace, prosperity, and independence.

Coffee Pickers

COMMERCE OF MEXICO AND THE UNITED STATES

By Hon. O. P. Austin,
Chief of Bureau of Statistics, Treasury Department

COMMERCE between the United States and Mexico has made very rapid gains since the establishment of rail communications between the two countries. Prior to that time European countries enjoyed a large share of the import trade of Mexico, the exports from France and the United Kingdom ranging from five to ten million dollars per annum each, and those from Spain averaging about one million dollars annually, and those of Germany less than a million dollars. With the construction of railways giving close communication between Mexico and the United States, shipments from the United States into Mexico rapidly increased and quickly outgrew those from European countries.

In 1890 exports from the United States to Mexico were a little above thirteen million dollars, those from the United Kingdom and France each about ten millions, Germany three and a half millions, and Spain nearly two millions. As the railway lines from the United States extended farther into Mexico and the number of lines multiplied, the exports from the United States to that country grew to fifteen million dollars in 1895, twenty-three millions in 1897, twenty-five millions in 1899, thirty-four millions in 1900, and thirty-six millions in 1901.

Meantime the exports from the United Kingdom to Mexico, which were $9,794,000 in 1890, fell to $8,056,000 in 1895, and have in the last two years shown a slight reaction, being in 1900 $10,506,000. From France the exports, which in 1890 were $10,777,000, fell to $7,498,000 in 1895 and $7,060,133 in 1899. From Germany the exports to Mexico were in 1890 $3,544,000 and in 1899 $5,372,000; from Spain in 1890, $1,797,000 and in 1899 $1,891,000.

Thus it will be seen that the United States has, since the creation of a satisfactory railway system connecting this country with Mexico, made much more rapid gains in her trade with that country than any of the other parts of the world from which Mexico formerly obtained a large share of her imports. Exports from the United States to Mexico in 1900 were two and a half times as much as in 1890, while those from the United Kingdom show an increase of about 50 per cent, those from France a considerable decrease, those from Germany an increase of about 50 per cent, and those from Spain show little change. The United States now supplies considerably more than one-half of the imports of Mexico, and takes about one-third of her exports of merchandise, not including in this term her exports of precious metals, which nearly equal in value those of merchandise.

The principal imports into the United States from Mexico are sisal grass, used as a substitute for hemp in the manufacture of ropes, twine, etc.; coffee, copper, lead, hides and skins, and cattle. The imports of sisal grass in 1900 amounted to over eleven million dollars in value, having grown from a little more than four million dollars in 1891. Coffee imports into the United States from Mexico amounted in 1900 to a little over three million dollars; copper, including ore, three and a half millions;

lead, two and a half millions; hides and skins, one and a half millions, and cattle less than one million dollars in value.

On the export side, manufactures of iron and steel are by far the largest item in our trade with Mexico. Steam-engines increased from less than a half million dollars in 1891 to more than one million in 1900; machinery, from less than a million dollars in 1891 to more than five and one-half millions in 1900, and other manufactures of iron and steel, from two and a half millions in 1891 to more than seven millions in 1900. Coal and coke increased from a little more than a half million dollars in 1891 to about two and a half millions in 1900; lumber, from less than a million dollars in 1891 to nearly two millions in 1900; vegetable oils, from less than a hundred thousand dollars in 1891 to a million dollars in 1900; and chemicals, drugs, medicines, etc., from less than four hundred thousand dollars in 1891 to more than eight hundred thousand dollars in 1900.

The table which follows shows the commerce of the United States, United Kingdom, France, Germany, and Spain with Mexico from 1881 down to the latest available date:

Years.	UNITED STATES.		UNITED KINGDOM.		FRANCE.		GERMANY.		SPAIN.	
	Imports into, from Mexico.	Exports from, to Mexico.*	Imports into, from Mexico.	Exports from, to Mexico.	Imports into, from Mexico.	Exports from, to Mexico.	Imports into, from Mexico.	Exports from, to Mexico.	Imports into, from Mexico.	Exports from, to Mexico.
	Dollars.	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*
1881..	8,317,802	11,171,238	2,878,218	8,202,247	1,590,883	8,998,140	361,998	699,006	228,146	871,861
1882..	8,461,899	15,482,582	2,818,531	9,526,252	1,797,737	10,119,841	309,400	823,004	240,456	1,077,079
1883..	8,177,123	16,587,620	3,546,485	7,884,956	1,537,337	9,791,092	497,420	823,718	211,929	1,331,029
1884..	9,016,486	12,704,292	3,408,984	5,271,164	1,011,578	6,574,365	872,984	878,696	160,423	891,811
1885..	9,267,021	8,340,784	3,527,468	4,217,654	1,198,445	5,987,782	1,791,188	644,742	114,066	931,112
1886..	10,687,972	7,737,623	2,877,497	4,883,252	1,025,098	7,583,221	1,788,332	986,510	192,253	1,043,810
1887..	14,719,840	7,959,557	2,303,833	5,751,488	1,540,063	7,631,701	1,310,190	1,146,208	180,386	1,266,468
1888..	17,329,889	9,897,772	2,215,070	6,683,432	1,655,085	8,471,374	1,750,728	1,616,020	50,788	1,344,885
1889..	21,253,601	11,486,896	2,267,760	7,889,112	1,655,389	10,772,561	2,569,686	3,463,424	159,526	1,625,364
1890..	22,690,915	13,285,287	2,642,407	9,794,133	1,326,657	10,681,834	2,608,718	3,543,820	84,975	1,797,487
1891..	27,295,992	14,969,620	2,401,389	9,522,023	1,659,549	8,809,652	3,046,400	3,374,840	200,007	1,509,521
1892..	28,107,525	14,293,999	2,269,732	7,099,372	1,903,072	6,837,205	3,554,054	2,960,720	112,150	1,433,075
1893..	33,555,099	19,568,634	2,843,182	6,115,623	3,340,453	5,386,822	3,000,446	2,934,540	166,949	1,250,786
1894..	28,727,006	12,842,149	2,699,671	6,449,477	3,046,585	5,822,073	3,068,058	2,689,876	193,402	1,345,545
1895..	15,635,788	15,005,906	2,274,266	8,056,622	2,265,482	7,498,579	2,844,100	4,040,288	336,793	1,476,952
1896..	17,456,177	19,450,256	2,885,846	8,187,658	3,029,884	6,390,245	3,338,618	3,687,096	307,315	1,675,657
1897..	18,511,572	23,421,058	2,899,185	8,427,989	3,389,514	5,123,488	3,141,124	4,257,106	318,333	1,494,528
1898..	19,004,863	21,266,939	1,285,204	9,332,350	2,231,273	5,842,496	3,555,006	4,879,952	245,289	2,085,398
1899..	22,995,722	25,483,075	2,487,561	10,690,085	2,043,799	7,060,133	3,116,372	5,372,136	610,550	1,890,727
1900..	28,646,053	31,974,961	2,297,883	10,506,357	.....	.....	.....	.....	.....	.....
1901..	28,851,635	36,475,350	.....	.....	.....	.....	.....	.....	.....	.....

* Exports from the United States to Mexico, defective, the value of goods exported over railways not being included prior to 1894.

ARGENTINE-CHILE BOUNDARY DISPUTE

IN 1881, after years of bitter dispute, Argentine and Chile signed a treaty defining, as they supposed, the boundary between the two republics. They also agreed to appoint an expert from each government to survey the line according to the definition of this treaty, and to submit any points of difference which might arise between the two experts to a third party for final decision. Apparently this dispute, which had dragged on for forty years and more than once threatened war, was at last settled.

In due time, in 1888, the experts were appointed by each government and set to work surveying and locating the boundary. Immediately, however, the Chilean expert began to interpret the wording of the treaty differently from his Argentine associate In the words of the treaty, the boundary was defined as follows: "The boundary between the Argentine Republic and Chile from north to south as far as the parallel of 52° south is the Cordillera de los Andes. The frontier line shall run in that extent along the most elevated crests of said Cordilleras that may divide the waters, and shall pass between the slopes which descend one side and the other." The Chilean expert proceeded to include within his line, as far as its source, every stream whose waters flowed westward. The Argentine expert, on the other hand, drew his line from summit to summit of the highest crests of the mountain range.

In other words, the Chilean expert regarded the water divide as the boundary, and the Argentine expert the line joining the highest crests of the Andes. It may be that the persons who drew up the treaty of 1881 believed that the water divide and the highest crests were synonymous, but such is often not the case. Repeatedly the Andes are cut by gorges, through which flow rivers rising from 25 to 100 miles east of the Andes. Chile asserts that these rivers and all the territory drained by them belongs to her, and the line as traced by her expert is most carefully drawn to include every spring or stream whose waters flow into these rivers. Argentine, on the other hand, asserts that only the territory to the west of the line drawn connecting the highest peaks belongs to Chile. In long stretches, of course, the crest of the range and the water divide is identical, but then the range will be cut by a river gorge. While the Argentine line skips to the next crest, the Chilean line will dip down to the valleys and often runs in between swamps, and then after a circuit of perhaps a hundred miles, more or less, will come back to the mountain crest.

The differences between the two experts were thus so great that the question was, in 1896, submitted to the British Government for arbitration. It was agreed by each government that until a decision was rendered neither country should take possession of the disputed territory. Great Britain appointed arbitrators, but the years have dragged on and no decision has been rendered. During the past year the Argentine Government claims that Chile has been pushing roads across the mountains, building forts at strategic points, and so intrenching herself as to make her possession of the disputed territory certain in case hostilities should arise. The energetic protests of the Argentine Republic against Chile's action is the cause of the present rupture between the two governments.

To better understand the dispute between Chile and Argentine, we may instance the Alaska boundary dispute between Great Britain and the United States. For years the Alaska boundary

was unquestioned, but when certain territory became of value, Great Britain raised the question of uncertainty and claimed a strip to which she held no title and had never claimed title. In the same way with Chile and Argentine. For thirty years the Cordillera de los Andes was the boundary acknowledged by both governments. Then in 1841 Chile sent a colonizing expedition to the Peninsula of Brunswick, in the Straits of Magellan, and claimed the whole Magellan territory. The Argentine Republic protested, but was not sufficiently energetic to settle the question at once. Chile gained possession of a large part of what she then claimed, and the remainder of the claim is still in dispute.

Encouraged by this success, Chile proceeded to claim territory at various points along her entire length which she had never claimed before, and justified her conduct by her interpretation of the complex geographic conditions of the Andes. These claims continually increased until at last war between the republics became imminent. It was averted, however, and the Argentine Republic, at least, thought that everything was settled satisfactorily by the treaty of 1881. The ambiguous wording of that treaty, however, enabled Chile to claim even more than she had ever done before.

The parts of the disputed boundary are three:

1. That relating to the region between parallels 23° and 26° 52′ 45″ latitude south. The territory in dispute here was a tract between two parallel ranges, Argentine claiming the western and Chile the eastern range as the boundary. The dispute regarding this section became so bitter in 1899 that the United States Minister to Argentine, Mr. William H. Buchanan, was asked to act as arbitrator. He settled the difference by awarding to the Argentine Republic eleven-twelfths of the disputed territory in this region.

2. That relating to the boundary from parallel 26° 52′ 45″ to the proximity of parallel 52° latitude south. Sections of this boundary, where the water divide and the crests of the mountains coincide, have been settled by the two governments, but the larger distance is still undefined.

3. That relating to the boundary region close to latitude 52° south. This is the region of the Magellan Strait, and the geographic conditions are most complex. Chile has, however, as previously described, gained a large section of what she originally claimed.

RECENT DECISIONS OF U. S. BOARD ON GEOGRAPHIC NAMES

THE following decisions have been recently made by the U. S. Board on Geographic Names:

Año Nuevo; bay, creeks, island, and point, San Mateo County, California (not New Year).

Aultmans; run, tributary to Conemaugh River, Indiana County, Pennsylvania (not Alteman nor Altman's).

Barren; run, tributary to Jacobs Creek, Westmoreland County, Pennsylvania (not Barnes).

Bentley; post-office and railroad station, Baltimore County, Maryland (not Bentley Springs).

Bonnie Doon; post-office, Santa Cruz County, California (not Bonny Doon).

Bowleins ; creek and mountain, Yancey County, North Carolina (not Bolens).

Brockatonorton ; bay, in Chincoteague Bay, Worcester County, Maryland (not Bockatonorton nor Parkers).

Bynum; post-office, railroad station, and run, Harford County, Maryland (not Binum, Bimans, Bynhams, etc.).

Calabazas ; creek, tributary to Sonoma Creek, Sonoma County, California (not Calabezas nor Calebezas).

Calabazas is Spanish for *pumpkin*, *calabash*, etc.

Cascade Springs ; post village, Fall River County, South Dakota (not Cascade).

Chikasanoxee ; creek, tributary to Tallapoosa River, Chambers County, Alabama (not Chickasonoxie, etc.).

Cohobadiah ; creek, tributary to the Little Tallapoosa, Gleburne and Randolph Counties, Alabama (not Cohabadia nor Hobadijah).

Craigville ; post-office and railroad station, Orange County, New York (not Craigsville).

Cutnose ; creek, tributary to the Little Tallapoosa, Randolph County, Alabama (not Cutnoe nor Cut Nose).

Donohoe ; railroad station, Westmoreland County, Pennsylvania (not Donahoe nor Donohue).

Doves ; cove, in Bush River, Harford County, Maryland (not Dove nor Dove's).

Edmondson ; mountain, McDowell County, North Carolina (not Edmonson nor Edmundson).

Gillespie ; creek, Ohio County, West Virginia (not Gillaspies, Glasby, nor Glyspie).

Greys ; creek, tributary to Assawoman Bay, Worcester County, Maryland (not Gray's, Grey's, nor Rileys).

Griers; hollow, Franklin County, Pennsylvania (not Greer, Greers, etc.).

Honeygo ; run, branch of Whitemarsh Run, Baltimore County, Maryland not Herring nor Horning).

La Purisima Concepcion ; land grant, Santa Clara County, California (not La Purissima Concepcion).

Lauderick ; creek, tributary to Bush River, Harford County, Maryland (not Loderick, Luckwick, nor Ludwig).

Lemaster ; post-office and railroad station, Franklin County, Pennsylvania (not Lehmasters nor Lemasters).

Little Falls ; city and township, Herkimer County, New York (not Littlefalls).

Lobitos ; creek, San Mateo County, California (not Lobatos, Lobitas, nor Lobitus).

Matamoros ; town, near mouth of Rio Grande, State of Tamaulipas, Mexico (not Matamoras).

New Windsor ; village, post-office, and railroad station, Weld County, Colorado (not Windsor).

Nicks ; creek, tributary to Catawba River, McDowell County, North Carolina (not Nix).

Outward Tump ; island, Chincoteague Bay, Worcester County, Maryland (not West Clump).

Palomar ; mountain, in northern part of San Diego County, California (not Smith).

Parnell ; knob, at south end of North Mountain, Franklin County, Pennsylvania (not Parnel).

Phillipston ; post-office and railroad station, Clarion County, Pennsylvania (not Philipston).

Pilarcitos; canyon, creek, and lake, near Pillar Point, San Mateo County, California (not Pillarcitos).

Pit ; river, tributary to the Sacramento River in northern California (not Pitt).

This name, applied as early as 1850, is thus explained in Pacific Railroad Report, vol. VI, p. 64 :

"We passed many pits about six feet deep and lightly covered with twigs and grass. The river derives its name from these pits, which are dug by the Indians to entrap game. On this account Lieutenant Williamson always spelled the name with a single t."

Plum ; creek, tributary to Cheyenne River, Fall River County, South Dakota (not Plumb).

Price ; creek, Yancey County, North Carolina (not Price's).

Price Creek ; post-office and township, Yancey County, North Carolina (not Price's Creek).

Purisima ; creek and post-office, San Mateo County, California (not Purissima).

Putah ; creek and township, Yolo County, California (not Puta).

Ramsaytown ; post-office and township, Yancey County, North Carolina (not Ramseytown).

Reddens ; run, Indiana County, Pennsylvania (not Bedding).

Reems; creek, Buncombe County, North Carolina (not Reams, Reem, nor Rims).

This is a reversal of the decision Reem, made January 9, 1901, and published on page 87, no. 2, vol. xii, of this Magazine.

Robins; creek and marsh, Chincoteague Bay, Worcester County, Maryland (not Robbins, Robin's, nor Robin).

This is a reversal of the decision Robin, made in May, 1901.

Robins ; point, the end of Gunpowder Neck, Harford County, Maryland (not Robbins nor Robin).

Salisbury; township, Lehigh County, Pennsylvania (not Salsberg, Salsburg, nor Salsbury).

Sankaty; head or bluff, at east end of Nantucket Island, Massachusetts (not Sancoty, Squam, nor Sweseckechi).

Stansbury ; creek, branch of Middle River, Baltimore County, Maryland (not Stansberry).

Stansbury ; point, Back River, Baltimore County, Maryland (not Stansberry).

Stickel; hollow, Perry township, Fayette County, Pennsylvania (not Stickle).

Swaderick; creek, tributary to Gunpowder River, Harford County, Maryland (not Sundricks, Lauderick, nor Ludowick).

Teays; post-office and valley, Putnam County, West Virginia (not Teayes, Teayse, nor Teazes).

Two Lick; creek, post-office, and railroad station, Indiana County, Pennsylvania (not Two-Licks, Twolick, etc.).

Vailsgate ; post-office and railroad station, Orange County, New York (not Vailgate nor Vail's Tollgate).

Vieques; island off eastern end of Porto Rico, West Indies (not Biequi, Crab, Viequez, etc.).

Walker; post-office and railroad station, Baltimore County, Maryland (not Walkers Station nor Walkers Switch).

Watson; creek, on east side of Gunpowder River, Harford County, Maryland (not Waterson, Waterton, nor Watsons).

Weisenberg; post-office and township, Lehigh County, Pennsylvania (not Weissenburg, etc.).

Welsh ; post-office and railroad station, Chambers County, Alabama (not Welch).

Wharton; creek, Madison County, Arkansas (not Warton's nor Whorton).

Wharton Creek; township, Madison County, Arkansas (not Whorton Creek).

Whites; run, Indiana County, Pennsylvania (not Whites Spring).

Yeates; mountain, Yancey and Madison Counties, North Carolina (not Yates).

GEOGRAPHIC NOTES

HON. JOHN W. FOSTER ON MEXICO

THE phenomenal economic and social progress of Mexico during the last twenty-five years is clearly described by Mr. Foster in the leading article of this number. No man living is so well fitted to contrast the new Mexico with the Mexico of twenty-five years ago. General Foster began his diplomatic career as Minister to this Republic in 1873, and for seven years represented the United States. After an interim of twenty years, during which he was Minister to Russia, to Spain, and Secretary of State, he again visited Mexico, this time as the guest of the nation. The present prosperity of the young Republic impressed him on every side.

MAP OF THE PHILIPPINES

THROUGH the courtesy of Gen. A. W. Greely, the NATIONAL GEOGRAPHIC MAGAZINE is able to publish as a supplement to this number the magnificent map of the Philippines prepared under his direction by the U. S. Signal Office.

Every town or hamlet known by the Jesuits or reported to the War Department by its many officers throughout the islands is indicated on the map. It is a compilation of everything now known about the Philippine Archipelago. Sheet I gives the Northern Philippines and Sheet II the Southern Philippines, as officially divided by the United States Government.

A glance at the map shows how much exploration is needed in large sections. For instance, on the Island of Mindoro only a few names along the coast are given. The interior of the island is a blank.

The tremendous progress made by the American Government in the islands is graphically illustrated by the red lines, indicating cables, telegraphs, and telephones, which penetrate to nearly all corners of the archipelago. Nearly seven thousand miles of wire are now strung, whereas three years ago there was not one mile in service.

All the telegraph lines are owned by the Government and operated by a Government department—the United States Signal Corps. The stations noted as commercial stations are open to messages of a private and commercial character, while from the stations noted as military only messages of a military nature can be sent.

This map is the first map of the Philippines that has been prepared by American officials. The spelling of the names is that adopted by the United States Board on Geographic Names.

It may not be inappropriate to remark that the War Department printed an edition of only 400. The demands of the army posts in the Philippines and in the United States exhausted nearly the entire edition, so that only a few remain for public distribution. The National Geographic Society was, however, granted the use of the plate and has printed a large edition, so that each of its members may receive a copy of what is really the only up-to-date presentation of all that is now known of the geography of these islands.

GOLD MINING CONCESSION FOR NORTHEASTERN SIBERIA

THE expedition of geologists recently sent out to the Chukches Peninsula by Von Larlarski, who owns the concession for gold mining in that region, report that the geological formation of the peninsula is like that of Cape Nome opposite, and that much gold is to be found there. The Russian Government has been much criticised by the

newspapers for granting an exclusive concession to one individual. The criticism has, in fact, been so bitter that the government has been obliged to publish a three-column official defense of its action. It states that a concession was the only means of protecting the rich district from being invaded by American prospectors. The country is so far distant and so large that it is impossible to send troops there, but a strong Russian syndicate, for its own interests, would defend the property and keep out American and foreign gold-hunters.

There is probably little truth in the report that Senator Clark or any American capitalist has been granted concessions for mining in any part of Siberia.

By law all gold mined in Siberia and Russia must be sold to the government, which buys it at the ruling rates. It is a criminal offense to sell to any one else.

RAILWAYS OF THE WORLD

A LARGER addition was made to the railway mileage of the United States in 1901 than in any preceding year since 1890. The steam railways of the United States now aggregate about 200,000 miles, and those of the entire world nearly 500,000 miles. Figures published by the Treasury Bureau of Statistics give the number of miles of railway in operation in the United States at the end of 1900 as 194,321, and adding to this the 5,057 miles built in 1901 brings the grand total for the United States to 199,378 miles. This does not include railways operated by electricity, of which the mileage, exclusive of street and suburban roads, is now considerable and rapidly increasing.

The total miles now open for traffic in the entire world are estimated at 484,348, of which 220,657 miles are in North America, 168,605 in Europe, 35,580 miles in Asia, 28,364 in South America, 15,860 in Africa, and 15,282 miles in Australasia. The United States stands first, with 199,378 miles. Russia has 34,852; the German Empire, 31,934; France, 26,613; India, 25,035; Austria-Hungary, 22,919; Great Britain and Ireland, 21,700; Canada, 17,657; British Australasia, 15,266; Argentina, 10,419; Italy, 9,810; Mexico, 9,603; Brazil, 8,718, and Spain, 8,300 miles.

Of the half a million miles of railway in the world, the Bureau of Statistics estimates that about one-third are owned by the governments of the country in which they are located. About nine-tenths of the railways of Germany are owned by the national or state governments; about two-thirds of those of Russia are owned by the government, and nearly one-half of those of Austria-Hungary are also owned by the government. A large proportion of the railways of France will become the property of the government about the middle of the present century. In Italy nearly all of the railroads are owned by the government, but are operated by private companies which lease the lines from the government. In Australasia nearly all of the railways are owned by the governments of the various colonies, and in India a large proportion of the 25,035 miles in operation is owned or guaranteed by the Indian Government.

EMIGRATION FROM SIBERIA

MUCH is being written about the many thousands constantly pouring into Siberia, but little is heard in America of the great numbers who are compelled to return to Russia, having been unable to establish themselves in Siberia. The Russian papers during the past year have been severely criticising the arrangements of the government for persons seeking to colonize Siberia. It has been frequently stated in these papers that from 35 to 50 per cent of Russians entering Siberia have returned

within a few months, unsuccessful. In self-defense the Russian Government has therefore published figures showing the number of persons entering and leaving Siberia during the first nine months of 1901.

During this period 77,774 immigrants entered Siberia, and of these 25 per cent, or 19,728, returned within a short time. The reason of such a large proportion as one-fourth returning is explained as follows: During the past two years the crops have failed each season. Of the 19,000 who returned between January 1 and September 20, 1901, 16,000 had come from the grain provinces of Russia. Secondly, the steppe lands of Siberia along the railway are almost entirely taken up and only the forest lands remain. But the majority of the immigrants are from the steppe lands of Russia and, being unused to clearing forest lands, soon became discouraged and returned.

The Russian Ice-breaking Steamer Yermak, under command of her designer, Vice-Admiral Makarof, has returned in safety to Cronstadt, after a cruise of three or four months in the Arctic seas. In a review of the summer's work of the steamer, the Cronstadt *Messenger* says that she completed an accurate survey of the western coast of Nova Zembla from Sukhoi Nos to the Admiralty Peninsula, and made five voyages back and forth between Nova Zembla and Franz Josef Land.

The scientists who accompanied Admiral Makarof made interesting and important soundings and observations in all that part of the Arctic Ocean, and brought back 525 jars of zoölogical specimens obtained by means of the dredge and the sounding line, as well as large collections of flowers, minerals, and diatoms from the Arctic lands visited and explored. In the heavy ice northwest of Nova Zembla and off the coast of Franz Josef Land the *Yermak* made her way without difficulty.

The Foreign Population of the United States.—The Census Office has just published the number which each country of the world has contributed to our foreign-born population. The five nations having the largest representation are the same as in 1890, though the first three, Germany, Ireland, and England, show a large falling off. Italy is now in the sixth place, succeeding Scotland, which was sixth ten years ago. The following table shows the representation of each country:

Country of birth.	1900, Exclusive of Alaska and Hawaii.	1890.	Increase.
Total foreign born...	10,356,664	9,249,547	1,107,117
Germany	2,666,990	2,784,894	117,904*
Ireland	1,618,567	1,871,509	252,942*
England	841,967	908,141	66,174*
Canada (English)	785,958	678,442	107,516
Sweden	573,040	478,041	94,999
Italy	484,207	182,580	301,627
Russia	424,096	182,644	241,452
Canada (French)	395,297	302,496	92,801
Poland	383,510	147,440	236,070
Norway	336,985	322,665	14,320
Austria	276,249	123,271	152,978
Scotland	233,977	242,231	8,254*
Bohemia	156,991	118,106	38,885
Denmark	154,284	132,543	21,741
Hungary	145,802	62,435	83,367
Switzerland	115,851	104,069	11,782
Holland	105,049	81,828	23,221
France	104,341	113,174	8,833*
Mexico	103,410	77,853	25,557
Wales	93,682	100,079	6,397*
China	81,827	106,688	24,861*
Finland	62,811	.....	.....
Portugal	30,618	15,996	14,622
Belgium	29,804	22,639	7,165
Japan	25,077	2,292	22,785
Roumania	15,041	.....	.....
West Indies, except Cuba and Porto Rico	14,433	(a)	.....
Asia, N. S.	11,908	2,260	9,648
Cuba	11,153	(a)	.....
Turkey	9,933	1,839	8,094
Atlantic islands	9,784	9,739	45
Greece	8,564	1,887	6,677
Born at sea	8,229	5,533	2,696
Spain	7,072	6,185	887
Australia	6,851	5,984	867
South America	4,761	5,006	245*
Central America	3,901	1,192	2,709
Luxemburg	3,041	2,882	159
Africa	2,552	2,207	345
Europe, N. S.	2,263	12,579	10,316
India	2,050	2,143	93*
Pacific islands, except Philippine Islands	2,049	2,065	16*
Great Britain, N. S.	111	951	840*
Sandwich Islands (b)	.....	1,304	.....
Other countries	2,558	479	2,079

(a) Total for West Indies and Cuba in 1890, 23,256.
(b) Native born in 1890.
* Decrease.

The East Siberian branch of the Imperial Russian Geographical Society celebrated, at Irkutsk, on the 29th of November, 1901, the semi-centennial anniversary of its existence. Siberian delegations to the number of sixty were present; letters and congratulatory addresses were read from the parent society and its branches, from all the Russian universities, from the women of Siberia, and from the native students in the University of Tomsk, and more than two hundred telegrams of greeting were received from scientific societies, museums, city councils, zemstvos, and distinguished geographers in all parts of the Empire.

The governor-general read a telegram of congratulation from His Imperial Majesty the Tsar, which was welcomed with great applause, and in the presence of the members of the society and a great throng of spectators, the president, Mr. Kakovetski, unveiled the names of the distinguished Russian explorers and geographers Cherski, Turchaninof, Przhevalski, and Maximovich, which had been cut in the cornice of the stone façade of the Society's beautiful building. In the evening a jubilee dinner was given in the hall of the city council, and the flag-decorated house of the Society was brilliantly illuminated with colored electric lights.

Butter Exports from Siberia.—The St. Petersburg *Gazette* says that the export of butter from western Siberia is beginning to assume colossal proportions. In two months (June 15 to August 15) of 1901, for example, 702 car-loads (14,400,000 pounds) of Siberian butter were received by rail at the single Russian port of Riga, and were shipped by a single firm (Helmsing and Grimm) to London, Copenhagen, Hamburg, and other west-European cities.

In the latter part of September, at Kurgan, in the province of Tobolsk, there was an exhibition of milk products at which were shown samples of butter from more than 300 Siberian butter makers and dealers. In connection with the exhibition, there was held a convention of west-Siberian buttermakers, which resolved to urge an increase in the number of primary schools for the education of the common people, to hasten and facilitate the transportation of butter from western Siberia to the European market, to appoint sales agents in Great Britain, to combat in every possible way the spread of contagious and infectious diseases among cattle, and to establish a newspaper devoted to the interests of Siberian butter makers and dealers.

Siberian Mammoth.—The expedition sent out by the St. Petersburg Academy of Science to obtain the remains of the male mammoth discovered in northeastern Siberia is well on its return journey. It is stated that the hide of the mammoth is in an almost complete state of preservation, and in the stomach and teeth remains of undigested food were found.

Russian Polar Expedition.—A Russian capitalist has given $70,000 for the organizing and equipment of a new Russian polar expedition, which will sail early in the summer of 1902 on the ship *St. Panteleon*, and will spend two years in the Arctic regions.

J. E. Spurr, of the U. S. Geological Survey, is making a geological survey of Macedonia and Albania at the request and expense of the Sultan of Turkey.

The Commercial Geography, by Cyrus C. Adams, reviewed in the last number of this Magazine, has within one month of publication been introduced into over 300 cities and towns.

GEOGRAPHIC LITERATURE

Constantinople and its Problems. By Henry Otis Dwight, LL. D., with illustrations. New York: Fleming H. Revell Company.

Of the competency of Dr. Dwight to write a book on this subject there can be no question. Born in Constantinople, he has there spent the larger part of an active and useful life. He knows well the various languages, beliefs, and customs of its inhabitants. Moreover, he is a man of quick mind and genial temperament, sure by contact with men of all classes to pile up a store of rich experience. In his honesty as a narrator one must have full confidence. One may sometimes disagree with his opinions, but when he tells us something occurred we know he believes it occurred just as he said it did. He is not a man to pad or adjust even his anecdotes.

With this equipment the reader expects from him a valuable treatise on so important a subject as "Constantinople and its Problems." But the author is handicapped by two disadvantages. The first is that a man who lives and expects to live in Constantinople cannot deal with such a subject, his name being known, with frankness and unreserve. The political atmosphere of Constantinople does not favor free expression or the pushing of syllogisms to their conclusion. The second disadvantage is that he writes from a purely missionary point of view. This may be the highest point of view, but it is by no means the only one, nor is it the broadest. So the first disadvantage robs the book of its largest possible value, and the second disadvantage narrows its breadth.

The book is interesting from beginning to end. It conveys much information as to habits, customs, and ideas. It is chatty, rather than profound, and when dealing with problems or with geographic or political conditions is by no means equal to what Dr Dwight is capable of writing.

EDWIN A. GROSVENOR.

Constantinople—The Story of the Old Capital of the Empire. By William Holden Hutton, Fellow of St. John Baptist College, Oxford. Illustrated by Sydney Cooper. New York: The Macmillan Co.

This book contains nothing new, and little which has not been printed many times. The author has visited Constantinople, but his work is none the less of the sort which a compiler may easily produce at home, a few authorities being employed as sources of information. Pages 1 to 230 sketch the story of Constantinople; pages 231 to 336 indicate the more prominent objects of interest. In the historical summary the treatment is sympathetic, though unduly theological, and but small appreciation is shown of the city's commercial and political importance and of its great part in the Middle Ages. Whatever excellence the book possesses is constantly marred by carelessness of style and statement. There is apparently no rule for orthography. Thus we have Stamboul and Stambûl, St. Sophia and S. Sophia, kapousi and kapoussi, Pantocrator and Pantokrator, Valideh, Validé, and Valide, "os" and "us" used as termination of the same Greek word, and so on *ad infinitum*. Some of the slips amuse as well as surprise. Thus the bas-relief of the Emperor Theodosius holding the wreath to crown the victor in the chariot race, opposite page 324, is gravely entitled "The imperial box during the performance of a ballet!" On page 6 it is stated, "The seven hills . . . stretch . . . from east to west," regardless of the fact that six of the seven run north and south, and that the seventh is a rough triangle. Execrable proof-

reading is doubtless largely responsible for the numerous blunders on the outline map at the end. The most attractive and perhaps the most accurate feature of the book is its dainty illustrations by Mr. Sydney Cooper.

EDWIN A. GROSVENOR.

Primitive Man. By Dr. Moriz Hoernes. Translated from the German by James H. Loewe. With illustrations. New York: The Macmillan Co. $0.40.

This volume presents in compact form what is known of primitive man. The style is uninteresting, so that it is doubtful if the book will appeal to any except the professional anthropologist.

The Wisconsin Geological and Natural History Survey has published a bulletin entitled "The Clays and Clay Industries of Wisconsin," by Dr. E. R. Buckley (Bulletin VII (part 1), Economic Series, No. 4). Wisconsin possesses clays which are adapted to the manufacture of all kinds of brick, common and ornamental, and also for earthenware and porcelain. Hitherto these resources have not been much developed, owing to the great forests, which furnished abundance of timber for construction. The increase in the price of lumber, because of decrease of supply, will probably soon encourage the manufacture of bricks.

NATIONAL GEOGRAPHIC SOCIETY

PROCEEDINGS

MEETINGS OF THE SOCIETY:

November 29, 1901.—President Graham Bell in the chair.

Dr. Arthur P. Davis, Hydrographer of the Isthmian Canal Commission, read a paper on "The Best Isthmian Canal Route." Mr. Davis treated the question from the commercial and economic points of view only. Commercial and economic arguments, Mr. Davis believed, were largely in favor of the Panama route. Further notice of this paper will appear later in this Magazine.

December 13.—President Graham Bell in the chair.

"The Northwest Boundary" was the subject of three papers; Mr. C. H. Sinclair, of the U. S. Coast and Geodetic Survey, and Messrs. E. C. Barnard and Bailey Willis, of the U. S. Geological Survey. The papers will be published later.

LECTURES:

December 6.—President Graham Bell in the chair.

Prof. A. C. Haddon, of Oxford, England, gave an illustrated address on "The Natives of Borneo."

December 22.—President Graham Bell in the chair.

Hon. E. J. Hill, member of Congress from Connecticut, gave an address on the "Trans-Siberian Railway," which will be published in the February number of this Magazine.

ANNOUNCEMENTS

POPULAR LECTURES:

January 17, 1902.—"American Progress and Prospects in the Philippines;" Gen. A. W. Greely, Chief Signal Officer, U. S. Army.

General Greely has returned to America after an extended tour among the Philippine Islands. As an example of American progress in the Philippines, it may be stated that 6,000 miles of telegraph lines and cables have been put up in these islands by the U. S. Signal Corps in the three years since the capture of Manila. Telegraph and cable connections are now complete between the northern coast of Luzon and Jolo, 1,000 miles to the south.

January 31.—"Present Conditions in South Africa;" James F. J. Archibald, the well-known war correspondent.

Mr. Archibald was with the Boer army in the South African war until the occupation of Pretoria. Later he was with the British army for several months, and has thus seen the country from both sides. Previous service in the Chinese-Japanese war, with General Miles in various Indian campaigns, in the Santiago campaign, and with the British forces in the Sudan in 1899, had given him unusual experience for accurate and practical observation.

MEETINGS OF THE SOCIETY:

January 10, 1902.—Annual Meeting, Reports, and Elections.

January 24.—"The Magnetic Survey of the United States," Dr. L. A. Bauer, U. S. Coast and Geodetic Survey; "Ocean Currents," Mr. James Page, U. S. Hydrographic Office.

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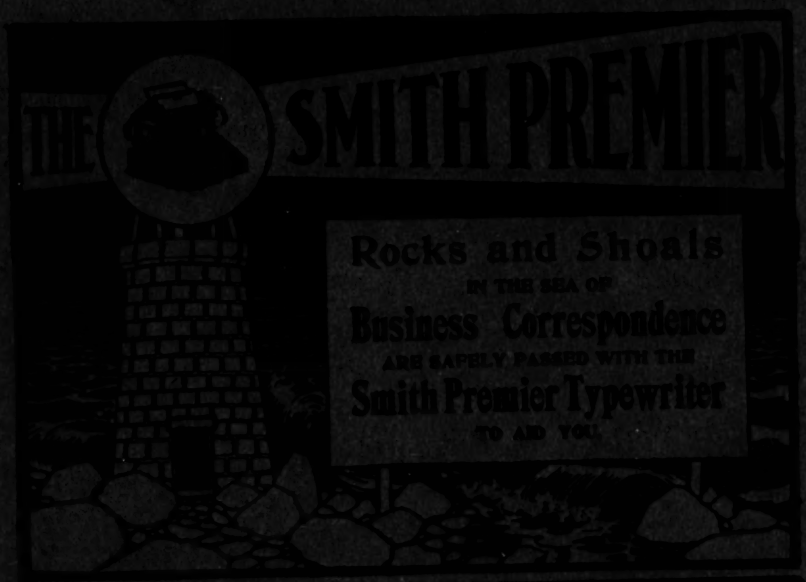

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